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ANALOG OUTPUT BOX

AO8

SERVICE MANUAL

• AO8-DA8

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PA 011506
200004**-250000

YAMAHA
HAMAMATSU, JAPAN

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IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: This presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is belived to be accurate and applicable to the unit(s) indicated on the cover. The research engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground bus in the unit (heavy gauge black wires connect to this bus).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

IMPORTANT. The wires in this main lead are coloured in accordance with the following code:

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the main lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The BLUE wire must be connected to the terminal that is marked with the letter N (or coloured BLACK).

The BROWN wire must be connected to the terminal that is marked with the letter L (or coloured RED).

Be certain that neither core is connected to the earth terminal of the three pin plug.

■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specification equal to those originally installed.

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SPECIFICATIONS

Sampling frequency (external sync)	39.69 kHz – 50.88 kHz
Power supply	USA and Canada: 120 V, 60 Hz
	Others: 230 V, 50 Hz
Power consumption	120 W
Dimensions (W x H x D)	480 mm x 141.5 mm x 466.8 mm
Weight	15.4 kg
Operating temperature	10 – 35 ˚C
Power cable length	2.1 m
Cooling fan speed	always fixed
Accessories	Connection cable (68-pin, D-sub, half-pitch) x 1, Length: 3 m

Digital I/Os

I/O connectors	Level	Type
INPUT A, B, C	RS-422	D-sub, half-pitch, 68-pin connector (female)
WORD CLOCK IN	TTL/75 Ω (ON/OFF)	BNC Connector
WORD CLOCK OUT	TTL/75 Ω	BNC Connector

Slots

Card	Input
LMY4-AD	Channel 1 – 4

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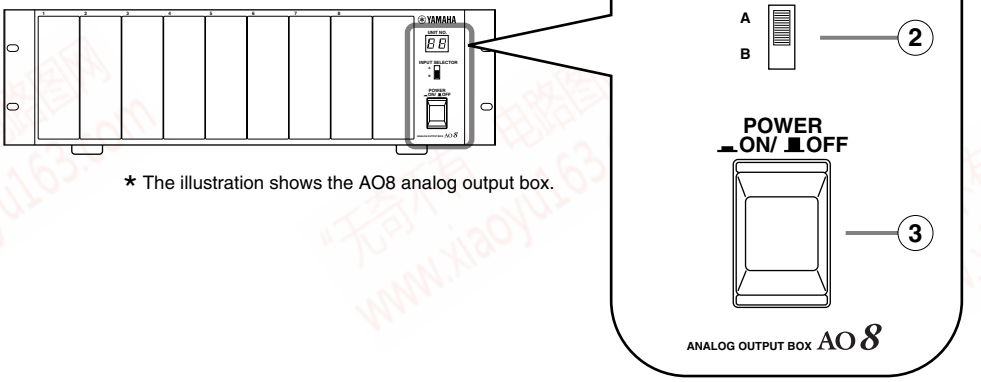
■ PANEL LAYOUT

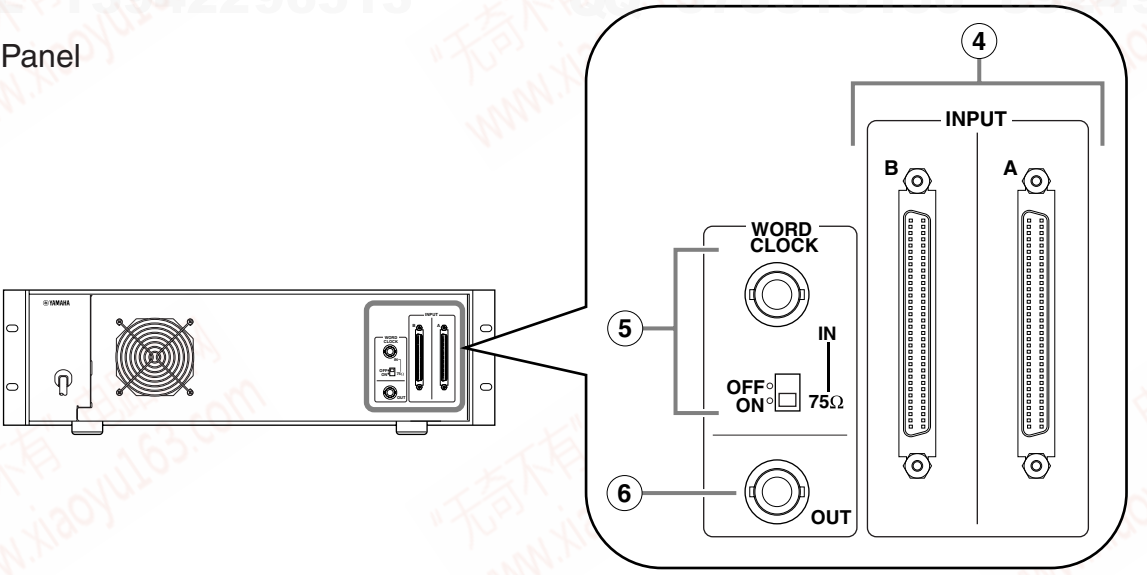
● Front Panel



* The illustration shows the AO8 analog output box.

(1) OUTPUT UNIT ID indicator
(2) INPUT SELECTOR switch
(3) POWER ON/OFF

● Rear Panel



(4) INPUT connectors A and B
(5) WORD CLOCK IN jack, ON/OFF switch
(6) WORD CLOCK OUT jack

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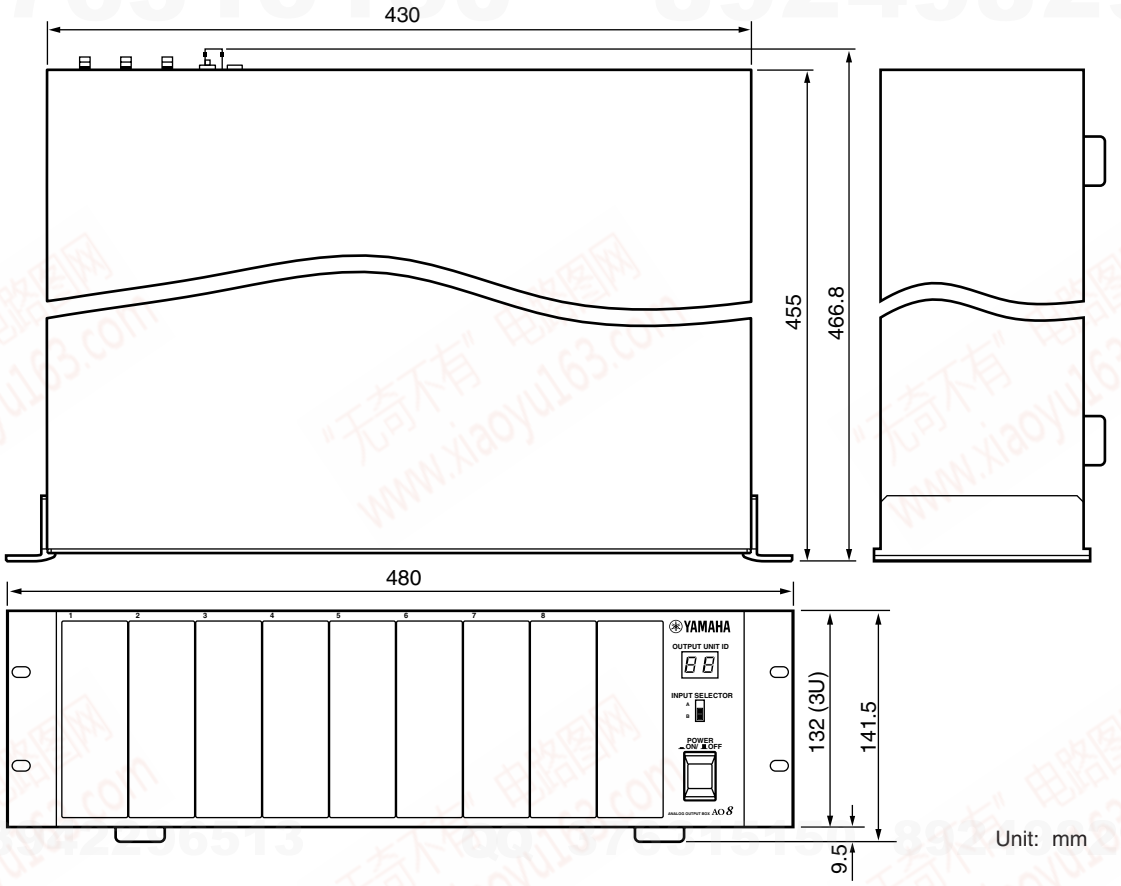
DIMENSIONS



Unit: mm

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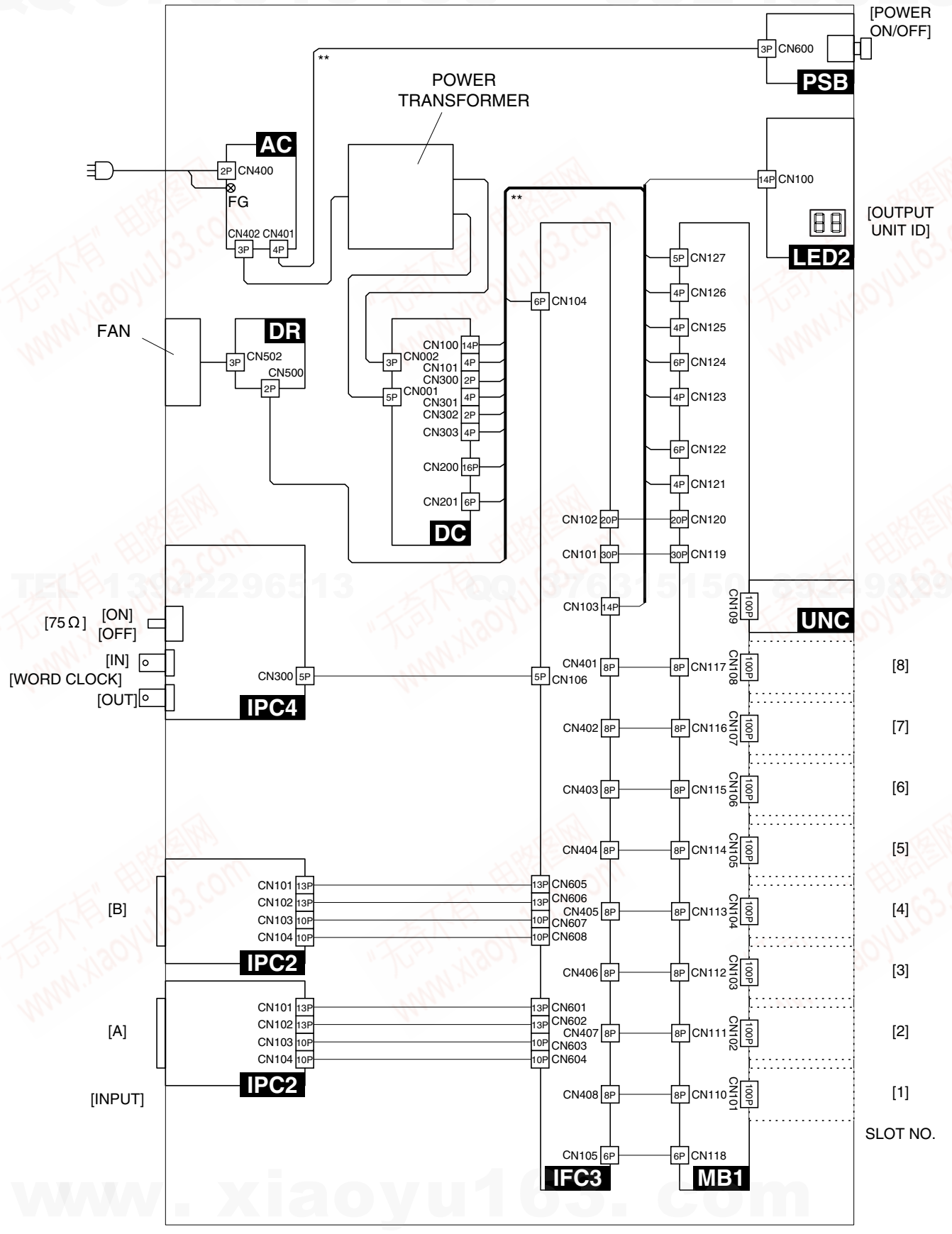
■ CONNECTOR CIRCUIT DIAGRAM



KEC-92523-2

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Circuit Board	CN No.	Pin No.
DC	CN100	1
		2
		3
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
		14
DC	CN101	1
		2
		3
DC	CN200	1
		2
		3
		4
		5
		6
DC	CN201	1
		2
		3
DC	CN300	1
		2
DC	CN301	1
		2
		3
		4
DC	CN302	2
DC	CN303	1
		2
IFC3	CN103	1
		2
		3
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
		14

Circuit Board	CN No.	Pin No.
MB1	CN122	4
		3
MB1	CN124	4
		3
MB1	CN127	5
IFC3	CN104	1
		2
MB1	CN122	2
		1
MB1	CN124	2
		1
MB1	CN127	3
IFC3	CN104	3
		4
MB1	CN127	4
IFC3	CN104	5
		6
MB1	CN121	4
MB1	CN123	4
MB1	CN125	4
MB1	CN121	1
MB1	CN123	1
MB1	CN125	1
MB1	CN121	2
MB1	CN123	2
MB1	CN125	2
DR	CN500	1
		2
MB1	CN122	6
MB1	CN124	6
MB1	CN126	2
		1
MB1	CN127	1
MB1	CN122	5
MB1	CN124	5
LED1	CN100	1
		2
		3
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
		14

AC	CN701	1
		4

PSB	CN600	1
		3

KEC-92523-3⚠

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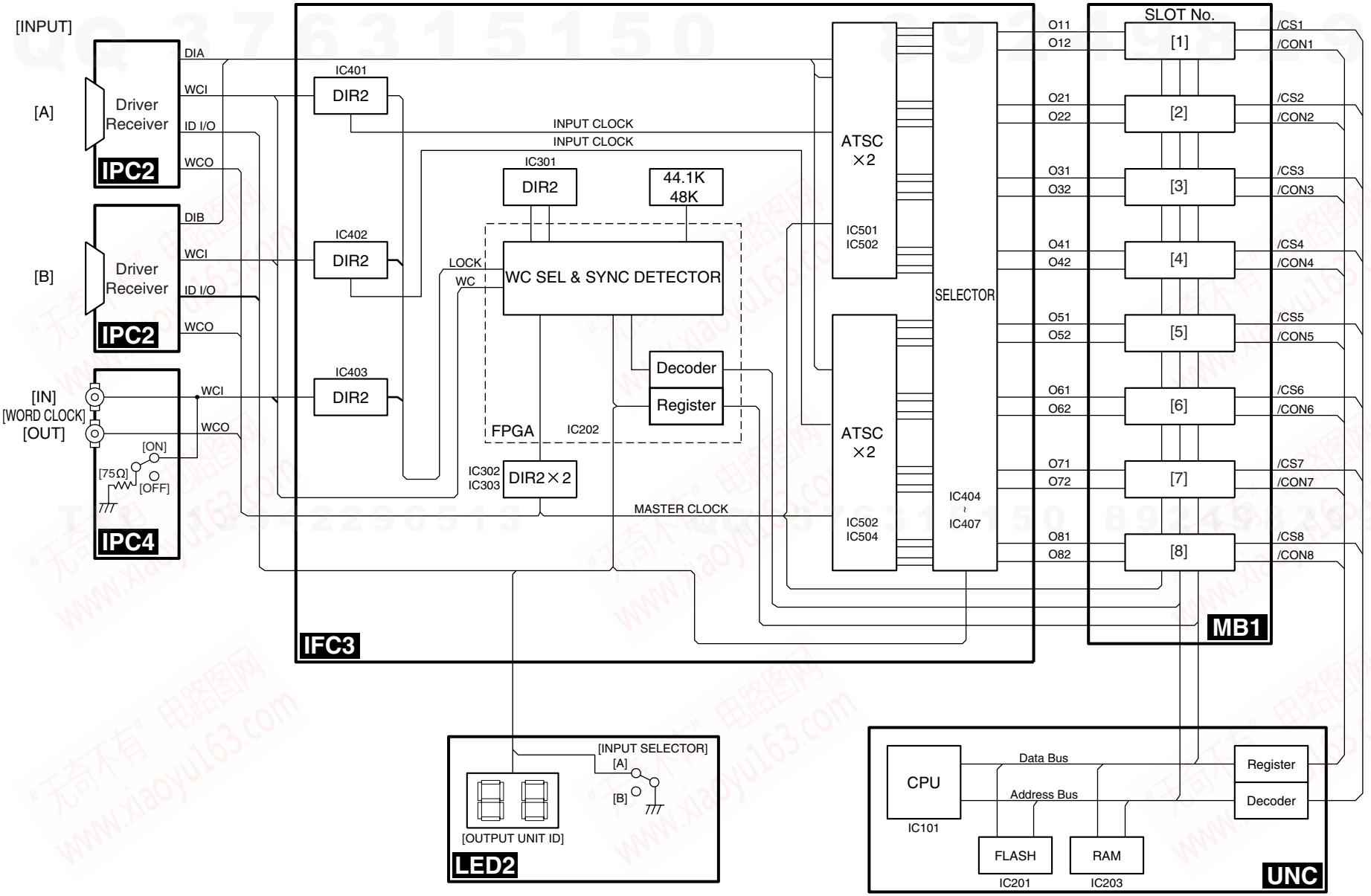
■ BLOCK DIAGRAM



KEC-92521

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DISASSEMBLY PROCEDURE

1. UNC Card Assembly

1-1 Remove the four (4) screws marked [470]. The UNC card assembly can them be removed. (Fig. 1)

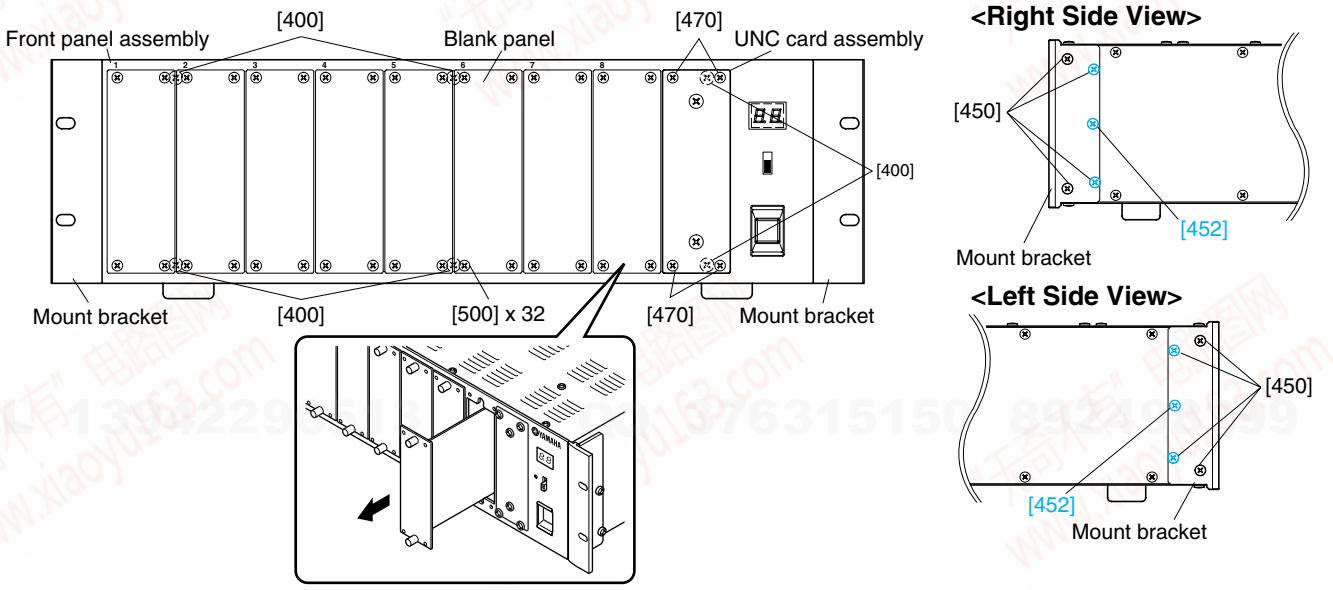
2. Front Panel Assembly

2-1 Remove the UNC card assembly. (See Procedure 1.)

2-2 Remove the thirty-two (32) screws marked [500]. The blank panel can then be removed. (Fig. 1)

2-3 Remove the six (6) screws marked [450]. Each mount bracket can then be removed. (Fig. 1)

2-4 Remove the six (6) screws marked [400]. The front panel assembly can then be removed. (Fig. 1)



[400]: Flat Head Screw 4.0x8 MFZN2BL (VA221200)
[450]: Oval Head Screw 4.0x8 MFZN2BL (VS153600)
[452]: Oval Head Screw B4.0x8 MFZN2BL (V6221000)
[470]: Bonding Screw 3.0x6 MFZN2BL (VS863000)
[500]: Bonding Screw 3.0x6 MFZN2BL (VS863000)

Fig. 1

3. LED2 Circuit Board

3-1 Remove the front panel assembly. (See Procedure 2.)

3-2 Remove the two (2) screws marked [80]. The LED2 circuit board can then be removed. (Fig. 2)

4. PSB Circuit Board

4-1 Remove the UNC card assembly. (See Procedure 1.)

4-2 Remove the front panel assembly. (See Procedure 2.)

4-3 Remove the seventeen (17) screws marked [430]. The top panel can then be removed. (Fig. 2)

4-4 Remove the two (2) screws marked [100]. The PSB circuit board can then be removed. (Fig. 2)

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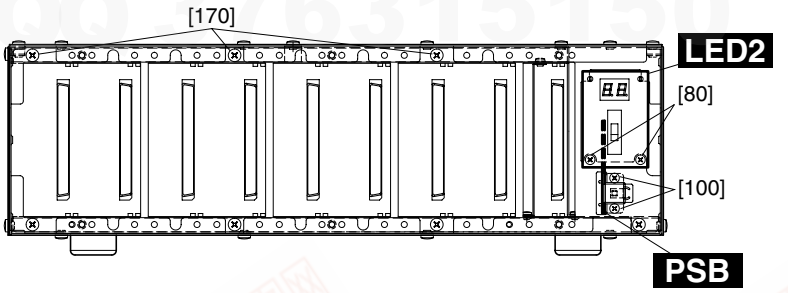
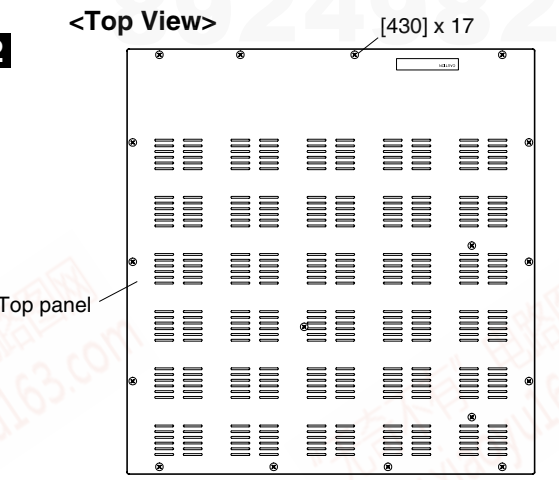




[80]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
[100]: Bind Head Screw 3.0x8 MFZN2BL (VB659000)
[170]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)
[430]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)

Fig. 2

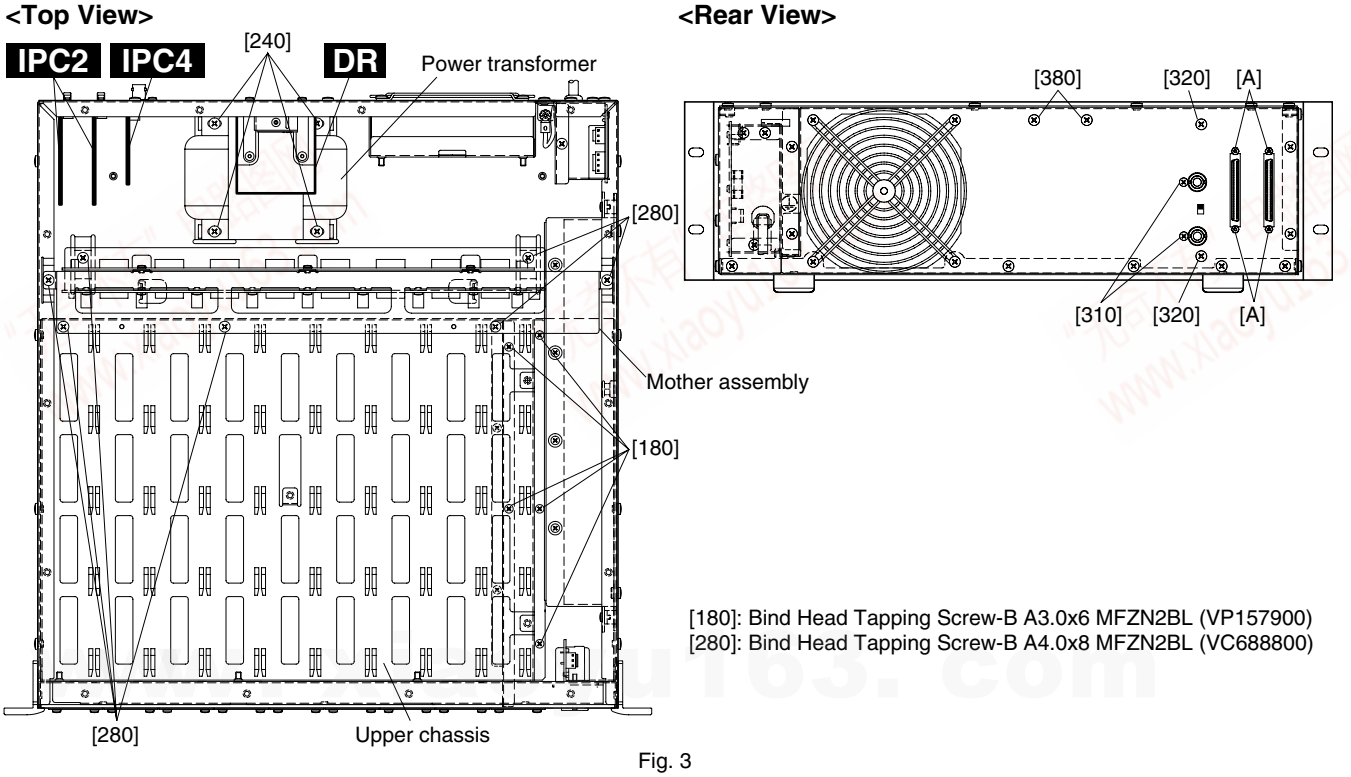
5. Circuit Boards and Units

Remove the top panel, each circuit board and unit can then be removed. (Fig. 3)

Circuit Board and Unit	Ref. No.	Screw	QTY
IPC2	A	Screw	2
IPC4	310	Bonding Screw 3.0x6 MFZN2BL (VS863000)	2
	320	Bind Head Screw A4.0x6 MFZN2BL (EG340290)	2
DR	380	Bonding Tapping Screw-B (VN413300)	2
Power Transformer	240	Bonding Tapping Screw-B (VC688800)	4

6. Mother Assembly

6-1 Remove the UNC card assembly. (See Procedure 1.)
6-2 Remove the front panel assembly. (See Procedure 2.)
6-3 Remove the top panel. (See Procedure 4-3.)
6-4 Remove the seven (7) screws marked [280]. The mother assembly can then be removed. (Fig. 3)



[180]: Bind Head Tapping Screw-B A3.0x6 MFZN2BL (VP157900)
[280]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)

Fig. 3

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7. MB1 Circuit Board

7-1 Remove the mother assembly. (See Procedure 6.)

7-2 Remove the nine (9) screws marked [30] and the five (5) screws marked [50]. The MB1 circuit board can then be removed. (Fig. 4)

8. IFC3 Circuit Board

8-1 Remove the mother assembly. (See Procedure 6.)

8-2 Remove the six (6) screws marked [70]. The IFC3 circuit board can then be removed. (Fig. 4)

9. Side Panel Assembly

9-1 Remove the UNC card assembly. (See Procedure 1.)

9-2 Remove the front panel assembly. (See Procedure 2.)

9-3 Remove the top panel. (See Procedure 4-3.)

9-4 Remove the mother assembly. (See Procedure 6.)

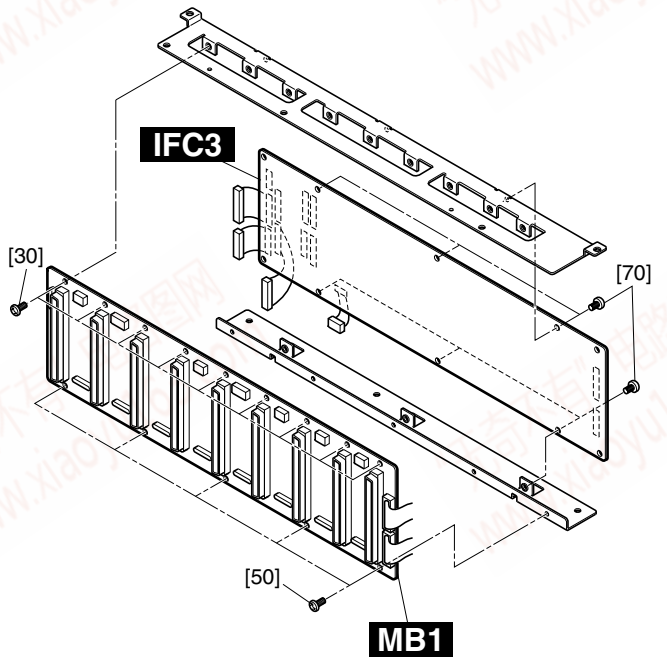
9-5 Remove the eight (8) screws marked [450] and the two (2) screws marked [452]. Each mount bracket can then be removed. (Fig. 5)

9-6 Remove the seven (7) screws marked [200]. The side panel (L) can then be removed.

9-7 Remove the three (3) screws marked [170] and the five (5) screws marked [180]. The upper chassis can then be removed. (Fig. 2, Fig. 3)

9-8 Remove the seven (7) screws marked [260]. The side panel assembly can then be removed. (Fig. 5)

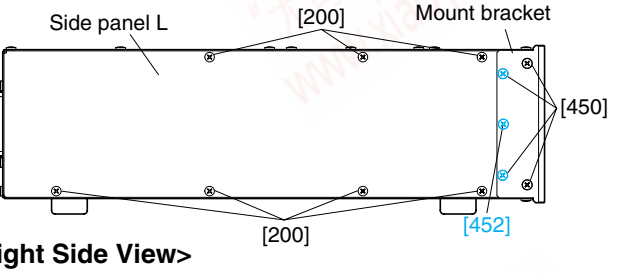
• Mother Assembly



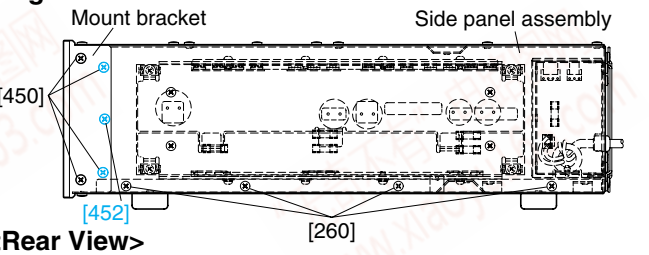
[30]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
[50]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
[70]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)

Fig. 4

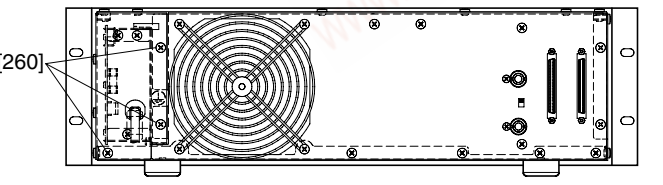
<Left Side View>



<Right Side View>



<Rear View>



[200]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)
[260]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)
[450]: Oval Head Screw 4.0x8 MFZN2BL (VS153600)
[452]: Oval Head Screw B4.0x10 MFZN2BL (V6221000)

Fig. 5

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10. AC Assembly

10-1 Remove the side panel assembly. (See Procedure 9.)

10-2 Remove the three (3) screws marked [90]. The AC assembly can then be removed. (Fig. 6)

11. DC Assembly

11-1 Remove the side panel assembly. (See Procedure 9.)

11-2 Remove the four (4) screws marked [60]. The DC assembly can then be removed. (Fig. 6)

12. DC Circuit Board

12-1 Remove the side panel assembly. (See Procedure 9.)

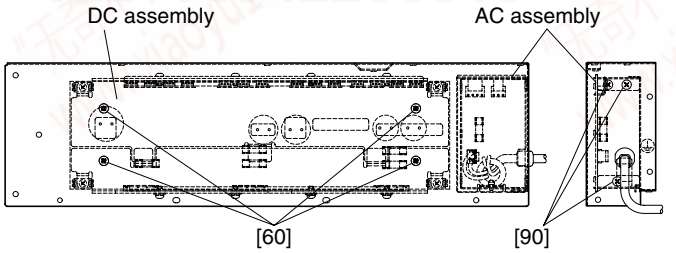
12-2 Remove the DC assembly. (See Procedure 11.)

12-3 Remove the four (4) screws marked [D60]. The TR holder can then be removed. (Fig. 7)

12-4 Remove the three (3) screws marked [D80]. The BR holder can then be removed. (Fig. 7)

12-5 Remove the five (5) screws marked [D90]. The DC cricuit board can then be removed. (Fig. 7)

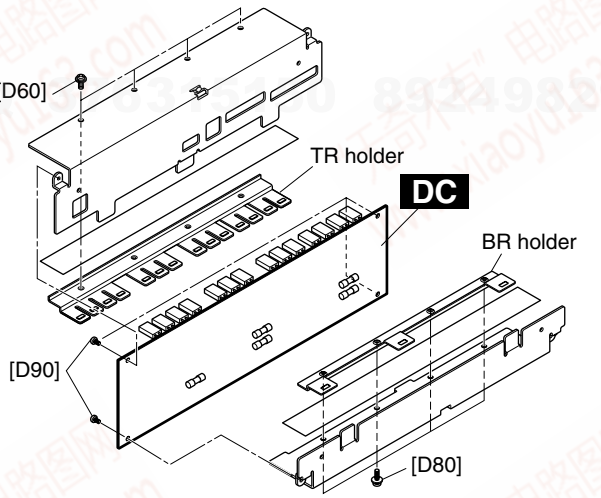
• Side Panel Assembly



[60]: Bind Head Screw A4.0x6 MFZN2BL (EG340290)
[90]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)

Fig. 6

• DC Assembly



[D60]: Pan Head Screw SP4.0x8 MFZN2Y (EL200020)
[D80]: Pan Head Screw SP4.0x8 MFZN2Y (EL200020)
[D90]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)

Fig. 7

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■ LSI PIN DESCRIPTION

● SGH609080F-47F (XU235A00) ATSC

IFC3: IC501–504

PIN NO.	NAME	I/O	FUNCTION
1	syncati	I	Synch. word input terminal for ati, siat3-0 input
2	mccti	I	64 fs clock input terminal for ati, siat3-0 input
3	mcbti	I	128 fs clock input terminal for ati, siat3-0 input
4	VCC		Power supply (+5 V)
5	GND		Ground
6	mcati	I	256 fs clock input terminal for ati, siat3-0 input
7	GND		Ground
8	siat0	I	Serial data input terminal
9	siat1	I	
10	siat2	I	
11	siat3	I	
12	ati	I	Optical input terminal
13	GND		Ground
14	ato	O	Optical output terminal
15	soat3	O	Serial data output terminal
16	soat2	O	
17	soat1	O	
18	soat0	O	
19	VCC		Power supply (+5 V)
20	GND		Ground
21	mcato	I	256 fs clock input terminal for ato, soat3-0 output
22	GND		Ground
23	mcbto	I	128 fs clock input terminal for ato, soat3-0 output
24	mccto	I	64 fs clock input terminal for ato, soat3-0 output
25	syncato	I	Synch. word input terminal for ato, soat3-0 output
26	clksel	I	Clock select terminal for ato, soat 3-0 output 0: mcato,mcbto,mccto,syncato 1: mcai,mcbi,mcci,synci
27	ato-sel0	I	Format select terminal for ato, soat3-0 output
28	ato-sel1	I	Format select terminal for ato, soat3-0 output
29	bitsel2		Bit shift select terminal for the ato output
30	bitsel1		
31	bitsel0		
32	VCC		Power supply (+5 V)
33	GND		Ground
34	ext-sync2		Synch. detect output terminal 2
35	ui0		U-bit input terminal for optical output
36	ui1		
37	ui2		
38	ui3		
39	si-sel0		input format select terminal for si3-0
40	si-sel1		input format select terminal for si3-0i

0: mcato,mcbto,mccto,syncato			
1: mcai,mcbi,mcci,synci			
ato sel1	**ato sel0**	**output format**	
1	1	ato	
1	0	soat0	(8ch/line)
0	1	soat2, 0	(4ch/line)
0	0	soat3-0	(2ch/line)

si sel1	**si sel0**	**input format**	
1	1	not enable to set	
1	0	si0	(8ch/line)
0	1	si2, 0	(4ch/line)
0	0	si3-0	(2ch/line)

PIN NO.	NAME	I/O	FUNCTION
41	synci	I	Synch. word input terminal for si3-0 input
42	mcci	I	64 fs clock input terminal for si3-0 input
43	mcbi	I	128 fs clock input terminal for si3-0 input
44	VCC		Power supply (+5 V)
45	GND		Ground
46	mcai	I	256 fs clock input terminal for si3-0 input
47	GND		Ground
48	si0	I	Serial data input terminal
49	si1	I	
50	si2	I	
51	si3	I	
52	GND		Ground
53	so3	O	Serial data output terminal
54	so2	O	
55	so1	O	
56	so0	O	
57	VCC		Power supply (+5 V)
58	GND		Ground
59	mcao	I	256 fs clock input terminal for so3-0 output
60	GND		Ground
61	mcbo	I	128 fs clock input terminal for so3-0 output
62	mcco	I	64 fs clock input terminal for so3-0 output
63	synco	I	Synch. word input terminal for so3-0 output
64	so-sel1	I	Format select terminal for soat3-0 output
65	so-sel0	I	Format select terminal for soat3-0 output
66	uo3	O	U-bit output terminal for optical output
67	uo2	O	
68	uo1	O	
69	uo0	O	
70	ext-sync1	O	Synch. detect output terminal 1
71	VCC		Power supply (+5 V)
72	GND		Ground
73	clk	I	Clock input terminal for word clock extract
74	GND		Ground
75	/res	I	System reset input terminal
76	GND		Ground
77	wc-at	O	Word clock output terminal
78	mute	I	Data mute input terminal
79	ati-sel1	I	Input format select terminal for ati, siat3-0.
80	ati-sel0	I	input format select terminal for ati, siat3-0.

so sel1	**so sel0**	**input format**	
1	1	not enable to set	
1	0	so0	(8ch/line)
0	1	so2, 0	(4ch/line)
0	0	so3-0	(2ch/line)

ati sel1	**ati sel0**	**input format**	
1	1	ati	
1	0	ati0	(8ch/line)
0	1	ati2, 0	(4ch/line)
0	0	ati3-0	(2ch/line)

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● **YM3436DK** (XG948E0) **DIR2** (Digital Format Interface Receiver)

IFC3: IC301 to 303, 401 to 403

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DAUX	I	Auxiliary input for audio data	23	RSTN	I	System reset input
2	HDLT	O	Asynchronous buffer operation flag	24	Vdda		VCO section power (+5V)
3	DOUT	O	Audio data output	25	CTLN	I	VCO control input N
4	VFL	O	Parity flag output	26	PCO	O	PLL phase comparison output
5	OPT	O	Fs x 1 Synchronous output signal for DAC	27	(NC)		
6	SYNC	O	Fs x 1 Synchronous output signal for DSP	28	CTLP	I	VCO control input P
7	MCC	O	Fs x 64 Bit clock output	29	Vssa		VCO section power (GND)
8	WC	O	FS x 1 Word clock output	30	TSTN	I	Test terminal. Open for normal use
9	MCB	O	Fs x 128 Bit clock output	31	KM2	I	Clock mode switching input 2
10	MCA	O	Fs x 256 Bit clock output	32	KM0	I	Clock mode switching input 0
11	SKSY	I	Clock synchronization control input	33	FS1	O	Channel status sampling frequency display output 1
12	XI	I	Crystal oscillator connection or external clock input	34	FS0	O	Channel status sampling frequency display output 0
13	XO	O	Crystal oscillator connection	35	CSM	I	Channel status output method selection
14	P256	O	VCO oscillating clock connection	36	EXTW	I	External synchronous auxiliary input word clock
15	LOCK	O	PLL lock flag	37	DDIN	I	EIAJ (AES/EBU) data input
16	Vss		Logic section power (GND)	38	LR	O	PLL word clock output
17	TC	O	PLL time constant switching output	39	Vdd		Logic section power (+5 V)
18	DIM1	I	Data input mode selection	40	ERR	O	Data error flag output
19	DIM0	I	Data input mode selection	41	EMP	O	Channel status emphasis control code output
20	DOM1	I	Data output mode selection	42	CD0	O	3-wire type microcomputer interface data output
21	DOM0	I	Data output mode selection	43	CCK	I	3-wire type microcomputer interface clock input
22	KM1	I	Clock mode switching input 1	44	CLD	I	3-wire type microcomputer interface load input

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● HD6477042AF28 (XY715A00) CPU

UNC: IC101

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	PE14	O	Port E	57	D11	I/O	
2	PE15	O	Port E	58	D10	I/O	
3	VSS	I	Ground	59	D9	I/O	Data bus
4	A0	O		60	D8	I/O	
5	A1	O		61	VSS	I	Ground
6	A2	O		62	D7	I/O	
7	A3	O		63	D6	I/O	Data bus
8	A4	O		64	D5	I/O	
9	A5	O		65	VCC	I	Power supply
10	A6	O		66	D4	I/O	
11	A7	O		67	D3	I/O	
12	A8	O	Address bus	68	D2	I/O	Data bus
13	A9	O		69	D1	I/O	
14	A10	O		70	D0	I/O	
15	A11	O		71	VSS	I	Ground
16	A12	O		72	XTAL	I	Crystal oscillator
17	A13	O		73	MD3	I	Mode control
18	A14	O		74	EXTAL	I	Crystal oscillator
19	A15	O		75	MD2	I	Mode control
20	A16	O		76	NMI	I	Non-maskable interrupt request
21	VCC	I	Power supply	77	VCC	I	Power supply
22	A17	O	Address bus	78	MD1	I	Mode control
23	VSS	I	Ground	79	MD0	I	Mode control
24	/RAS	O	Row address strobe	80	PLLVCC	I	PLL Power supply
25	/CASL	O	Column address strobe (low)	81	PLLCAP	I	PLL capacitor
26	/CASH	O	Column address strobe (high)	82	PLLVSS	I	PLL Ground
27	VSS	O	Ground	83	PA15 / CK	O	Port A / Clock
28	RDWR / PB5	O	DRAM read/write / Port B	84	/RES	I	Reset
29	A18	O		85	PE0	I	
30	A19	O	Address bus	86	PE1	I	
31	A20	O		87	PE2	I	Port E
32	PB9 /A21	O	Port B / Address bus	88	PE3	I	
33	VSS	I	Ground	89	PE4	I	
34	/RD	O	Read	90	VSS	I	Ground
35	/WDTOVF	O	Watch dog timer overflow	91	AN0 / PF0	I	
36	/WRH	O	High write	92	AN1 / PF1	I	
37	VCC	I	Power supply	93	AN2 / PF2	I	Analog input / Port F
38	/WRL	O	Low write	94	AN3 / PF3	I	
39	VSS	I	Ground	95	AN4 / PF4	I	
40	/CS1	O	Chip select	96	AN5 / PF5	I	
41	/CS0	O	Chip select	97	AVSS	I	Analog ground
42	PA9 / TCLKD	O	Port A / Timer clock	98	AN6 / PF6	I	Analog input / Port F
43	/IRQ2 / TCLKC	I	Interrupt request / Timer clock	99	AN7 / PF7	I	Analog input / Port F
44	/CS3	O	Chip select	100	AVCC	I	Power supply
45	/CS2	O	Chip select	101	VSS	I	Ground
46	/IRQ1	I	Interrupt request	102	PE5	O	Port E
47	TXD	O	Data transmission	103	VCC	I	Power supply
48	RXD	I	Data reception	104	PE6	O	
49	/IRQ0	I	Interrupt request	105	PE7	O	
50	PA1 / TXD0	O	Port A / Data transmission	106	PE8	O	Port E
51	PA0 / RXD0	I	Port A / Data reception	107	PE9	O	
52	D15	I/O		108	PE10	O	
53	D14	I/O	Data bus	109	VSS	I	Ground
54	D13	I/O		110	PE11	O	
55	VSS	I	Ground	111	PE12	O	Port E
56	D12	I/O	Data bus	112	PE13	O	

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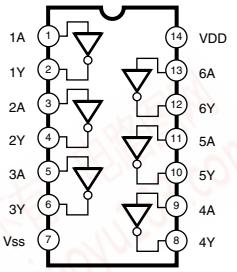
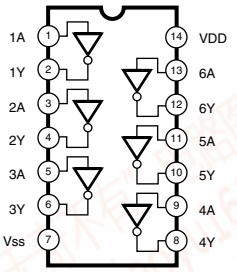
IC BLOCK DIAGRAM

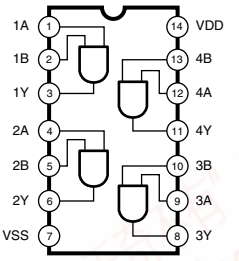
- **HD74LVU04AFPEL** (XY102A00)
  Hex Inverter
  IFC3: IC105



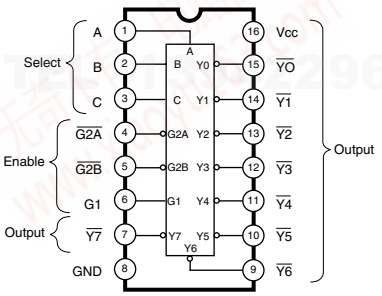
- **HD74LV04AFPEL** (IS000400)
  Hex Inverter
  IFC3: IC311, 408
  UNC: IC105



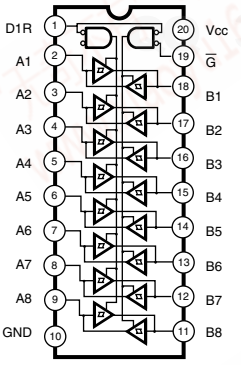
- **HD74LV08AFPEL** (IS000800)
  Quad 2 Input AND
  IFC3: IC104, 310, 409
  UNC: IC104, 213



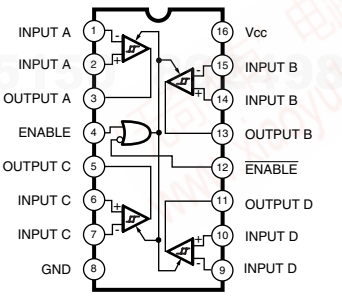
- **SN74LV138ANSR** (IS013810)
  3 to 8 Demultiplexer
  UNC: IC211, 212



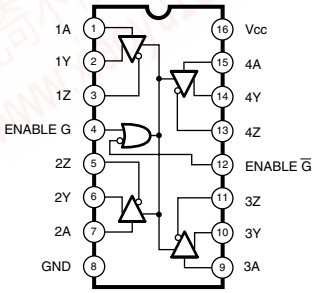
- **TC74VHC245F** (XT487A00)
  Octal 3-State Bus Transceiver
  IPC2: IC104, 105
  IFC3: IC101-103, 106, 107, 404-407, 601-608
  UNC: IC102, 204, 210



- **DS26C32ATMX** (XU815A00)
  Quad Differential Line Receiver
  IPC2: IC100-103, 106



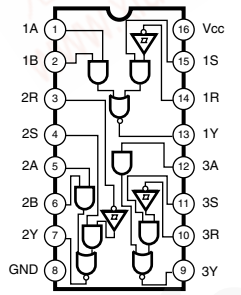
- **AM26LS31CNSR** (XU996A00)
  Quad Line Driver
  IPC2: IC107



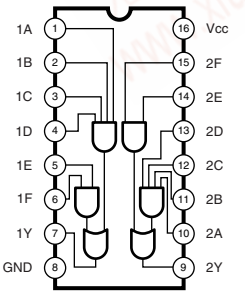
INPUT	ENABLES		OUTPUTS	
A	G	$\overline{G}$	Y	Z
H	H	X	H	L
L	H	X	L	H
H	X	L	H	L
L	X	L	L	H
X	L	H	Z	Z

H= high level X= irrelevant
L= low level Z= high impedance (off)

- **SN75124N** (XE737A00)
  Triple Line Receiver
  IPC4: IC300



- **SN75121** (XE638A00)
  Dual Line Driver
  IPC4: IC301



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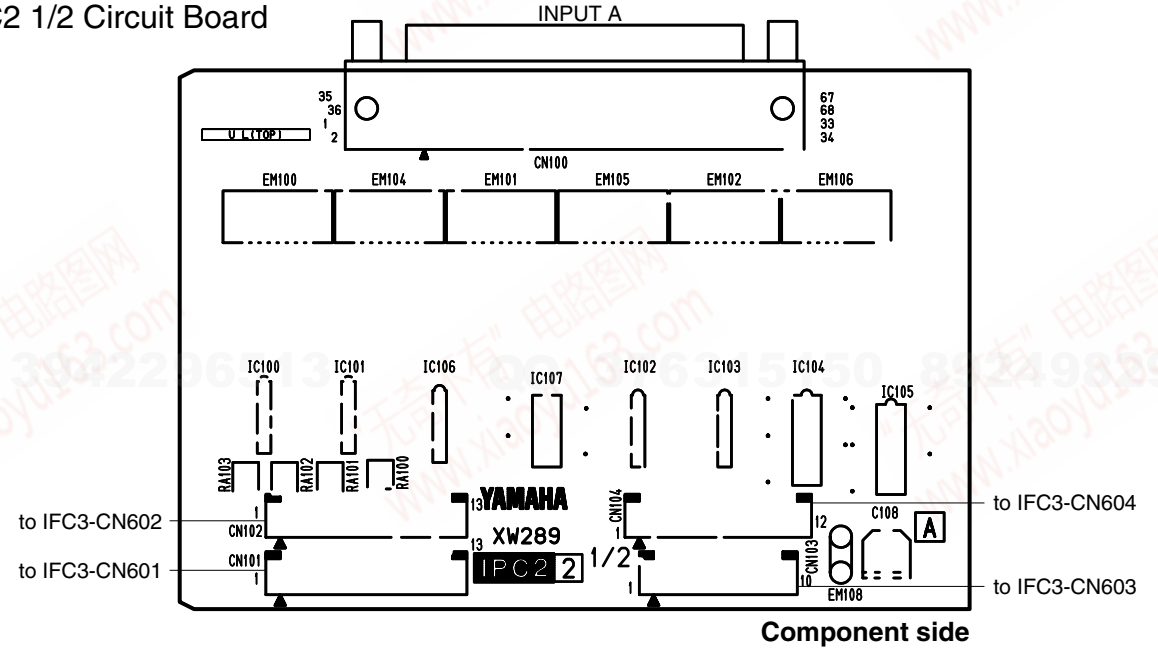
■ CIRCUIT BOARDS

AC Circuit Board (XW295B0) 16
DC Circuit Board (XW295B0) 17
DR Circuit Board (XW295B0) 16
IFC3 Circuit Board (XW287A0) 19
IPC2 Circuit Board (XW289A0) 15
IPC4 Circuit Board (XW286B0) 16
LED2 Circuit Board (XW286B0) 16
MB1 Circuit Board (XW282A0) 17
PSB Circuit Board (XW295B0) 16
UNC Circuit Board (XW281B0) 18

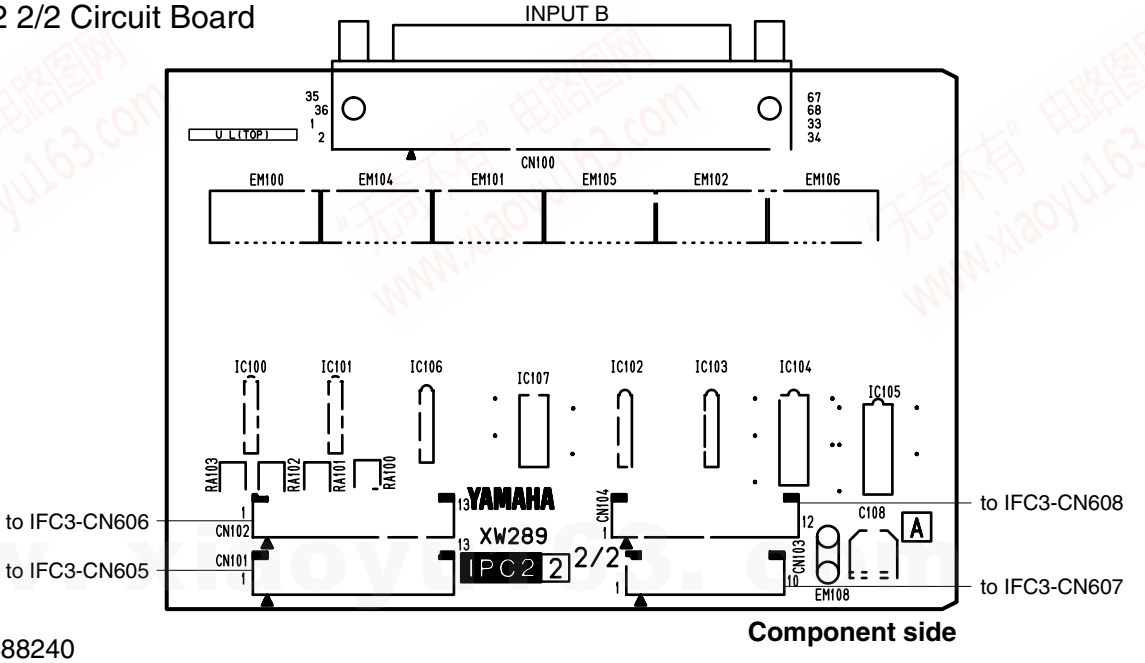
Note: See parts list for details of circuit board component parts.

● IPC2 1/2 Circuit Board



Component side

● IPC2 2/2 Circuit Board



Component side

3NA-V488240

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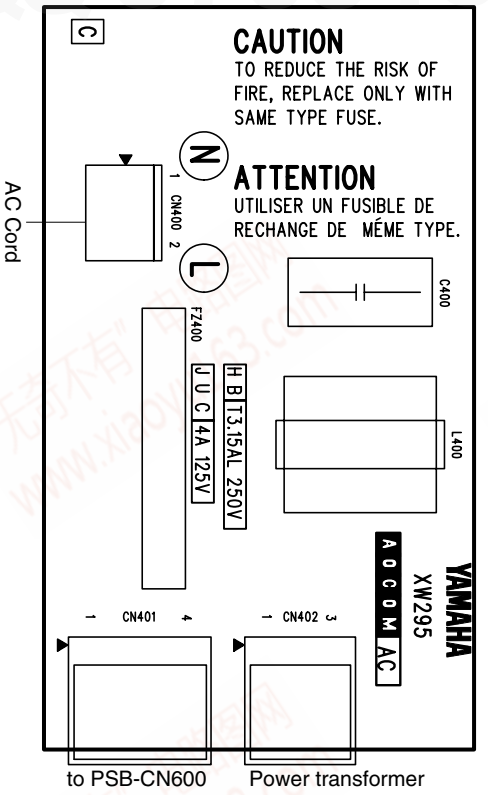
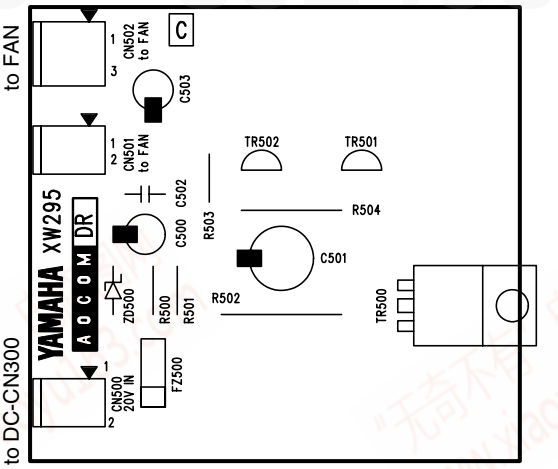
● AC Circuit Board



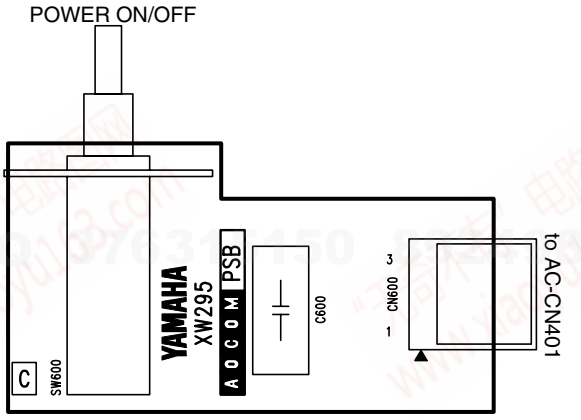
Component side

● DR Circuit Board



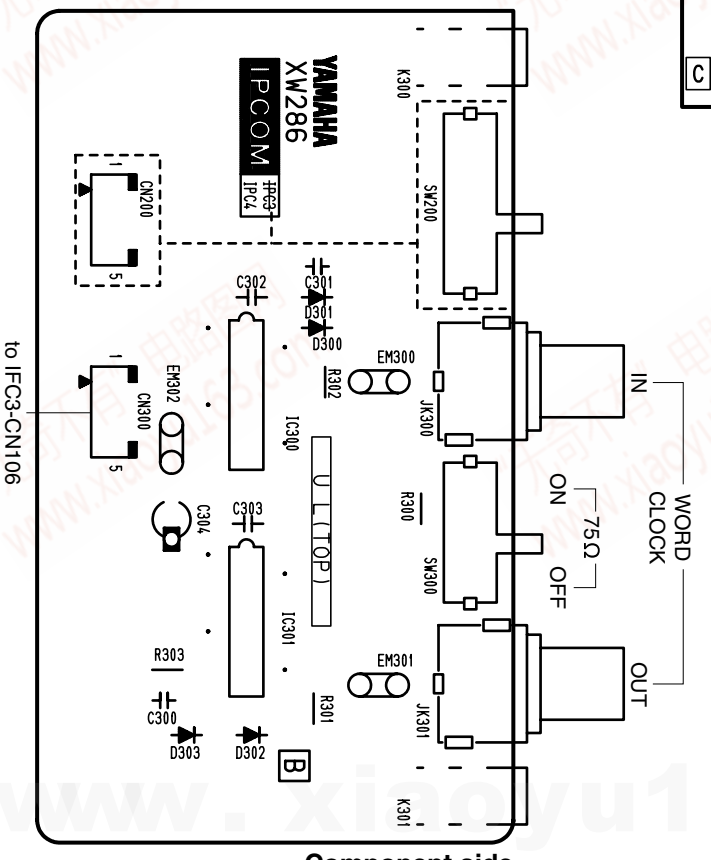
Component side

● PSB Circuit Board



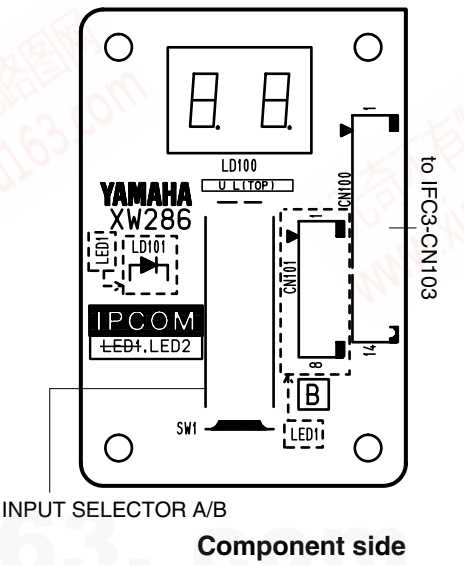
Component side

● IPC4 Circuit Board



Component side

● LED2 Circuit Board



Component side

AC, DR, PSB: 3NA-V412970
IPC4, LED2: 3NA-V491380

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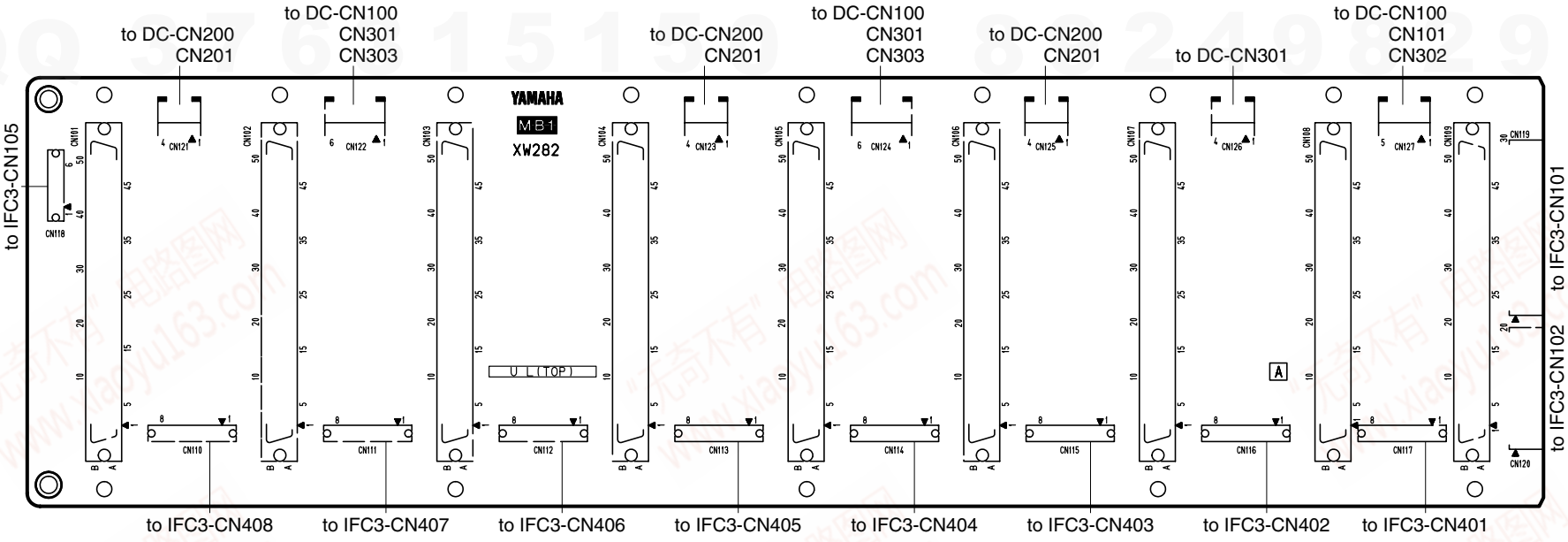
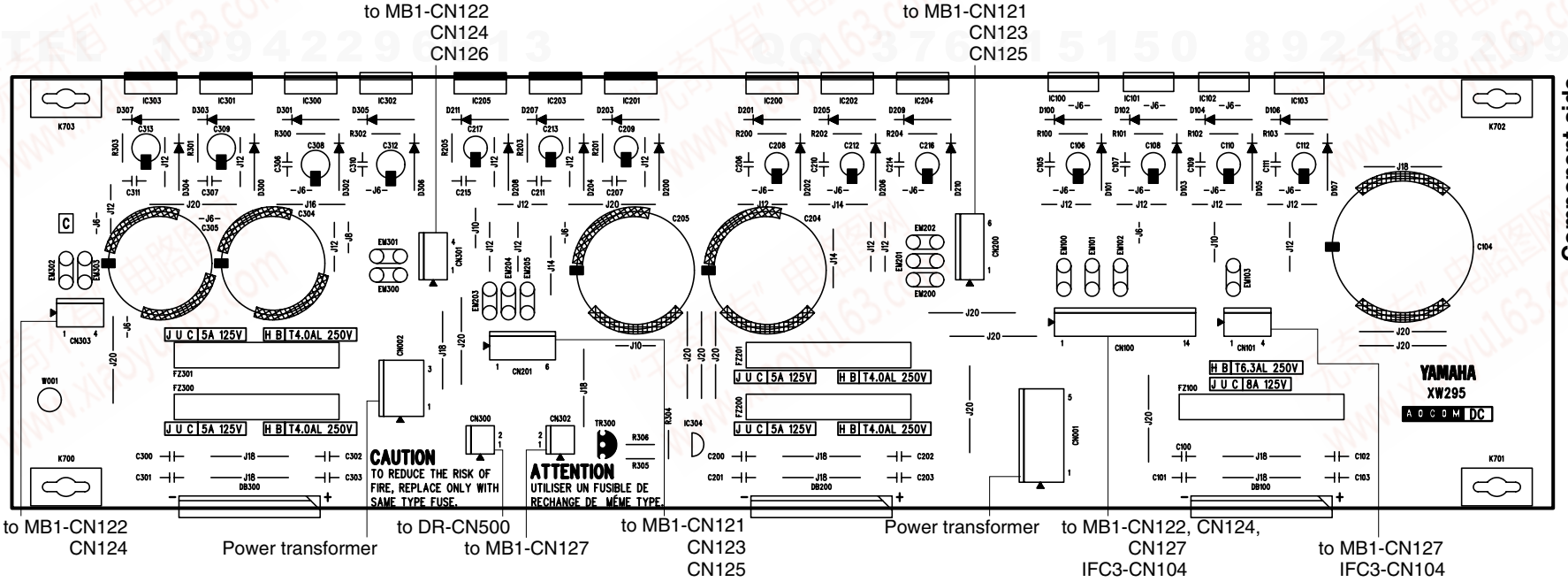
● MB1 Circuit Board



● DC Circuit Board



DC: 3NA-V412970
MB1: 3NA-V412880

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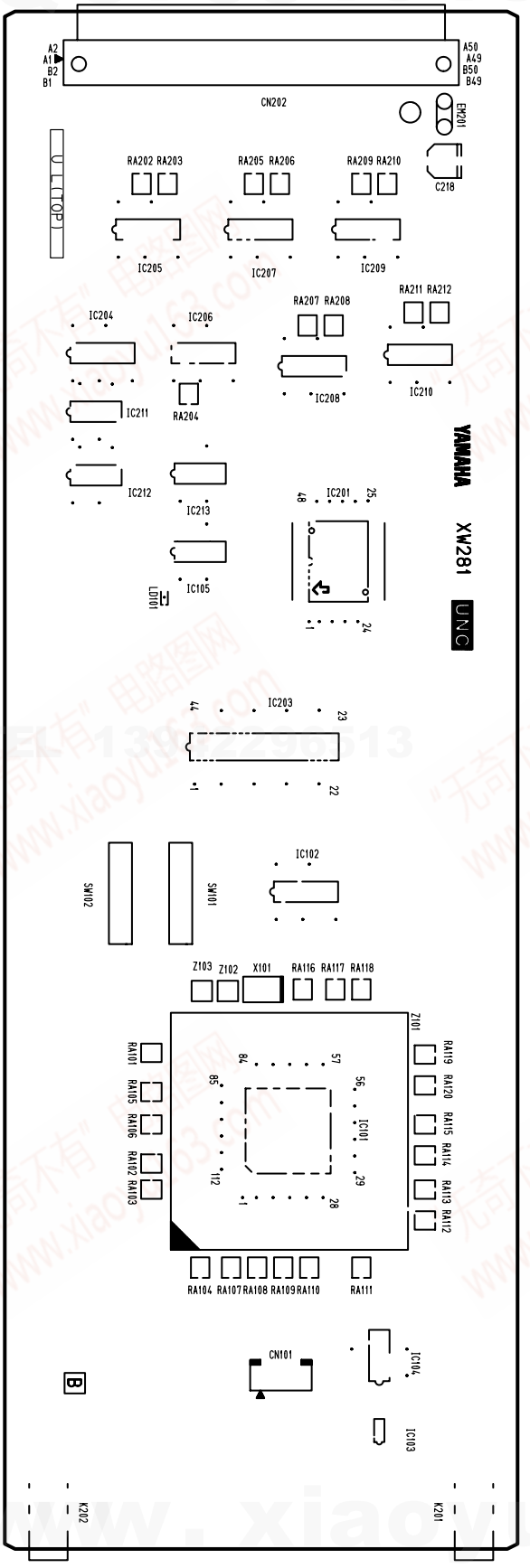
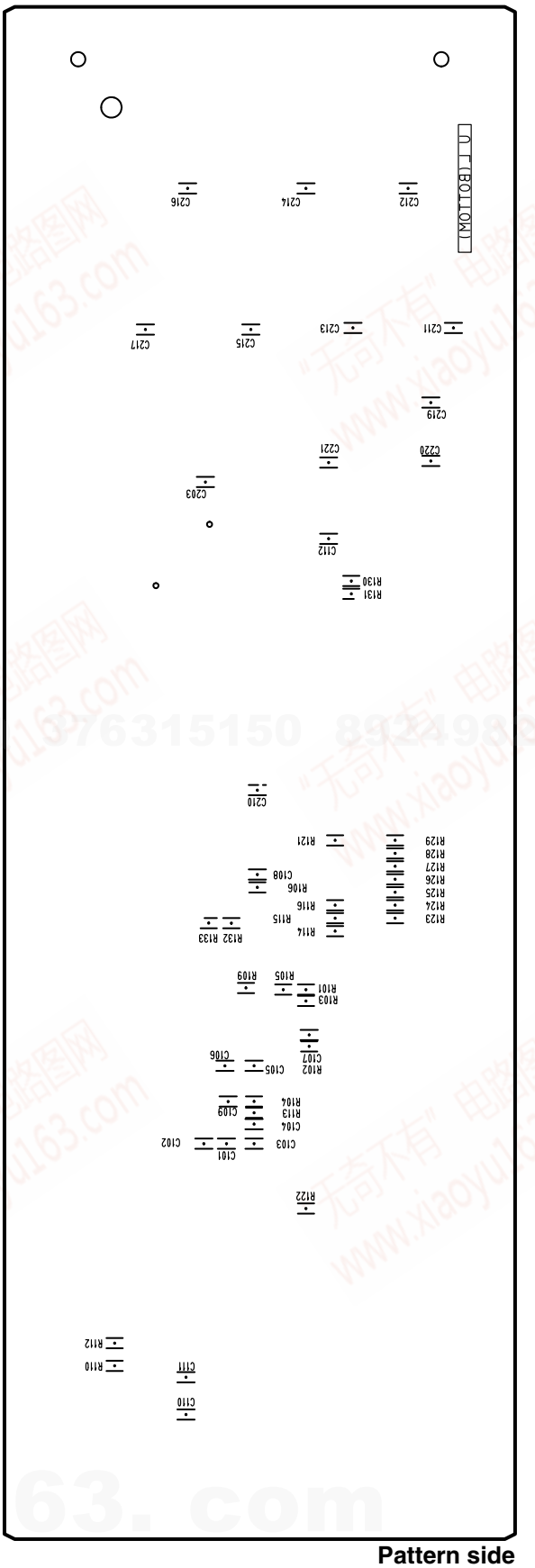
● UNC Circuit Board



Component side



Pattern side

3NA-V412870Ⓐ

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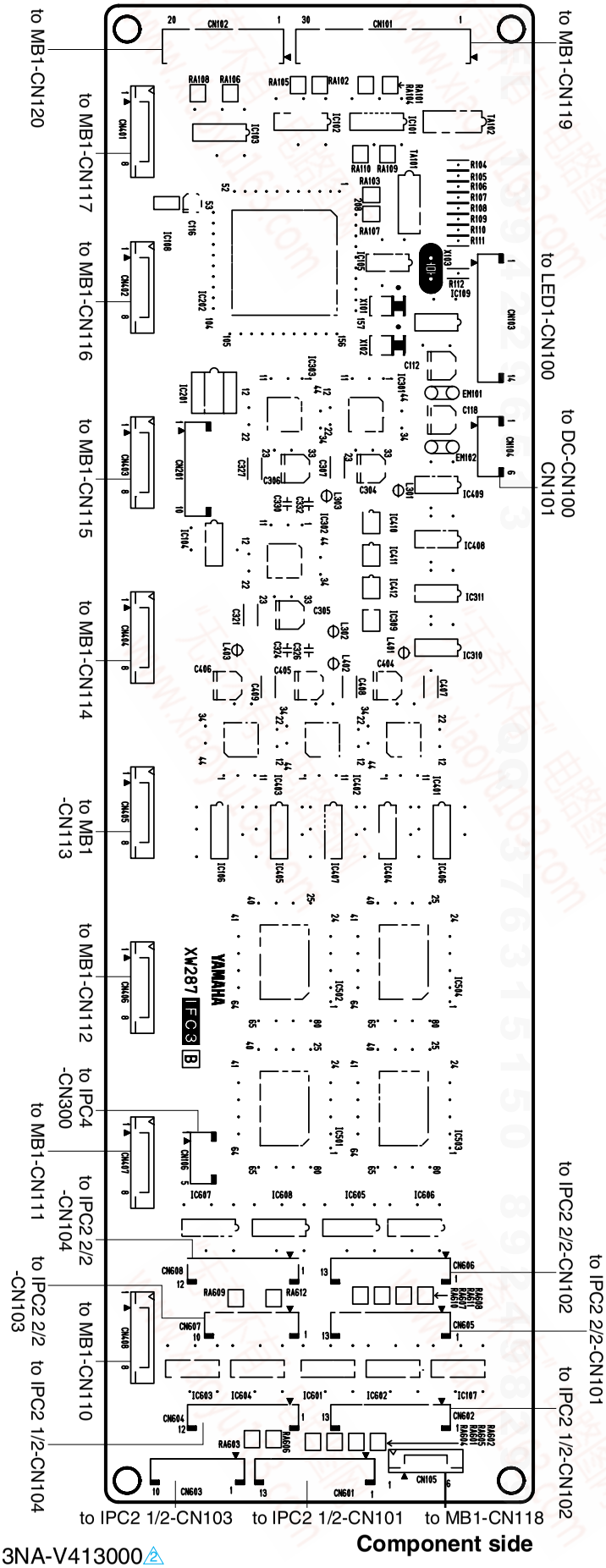
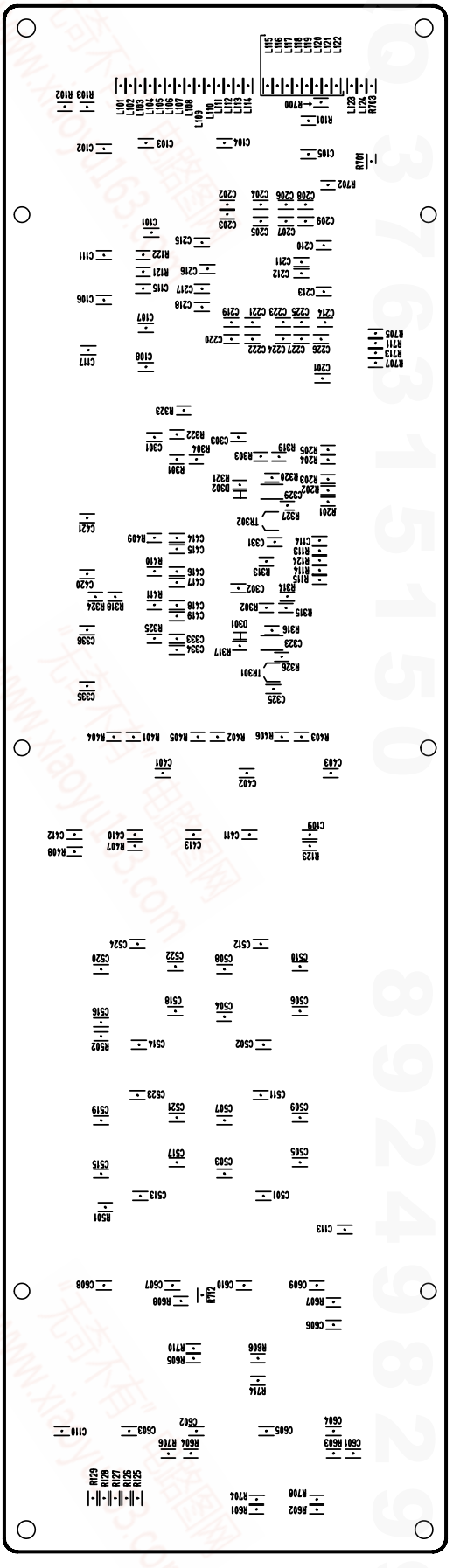
● IFC3 Circuit Board



Component side



Pattern side

3NA-V413000

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■ INSPECTION

1. Range of Applicability

These specifications apply to the AO8 and AO8-DA8.

2. Preparations

2-1. Conditions

◇ For details on the connection method, refer to the Test Program Specifications KES-92653.

◇ Unless otherwise specified, the conditions are as follows.

· Set the INPUT SELECTOR switch to A.

· Set WORD CLOCK IN 75 Ω to ON.

2-2 Loading the Firmware

The firmware used must be the "AI8/AO8 Firmware" (managed with the already drawn CD-R assembly drawing (3JL-XY714A0)) of the PM1D System Software with a version later than the version shown on the cover. For details on the firmware writing method, refer to theTest Program Specifications KES-92652.

2-3. Test Program

For details on the starting method etc., refer to the Test Program Specifications KES-92653.

3. Inspection

3-1. Inspection with Test Program

· Inspect based on the Test Program Specifications KES-92653.

3-2. Jitter Measurement

· Connect the LMY-slot inspection jig Canon terminal to DSA1.

· Set Fs to 48 kHz and 44.1 kHz with the test program and measure the jitter at DSA1.

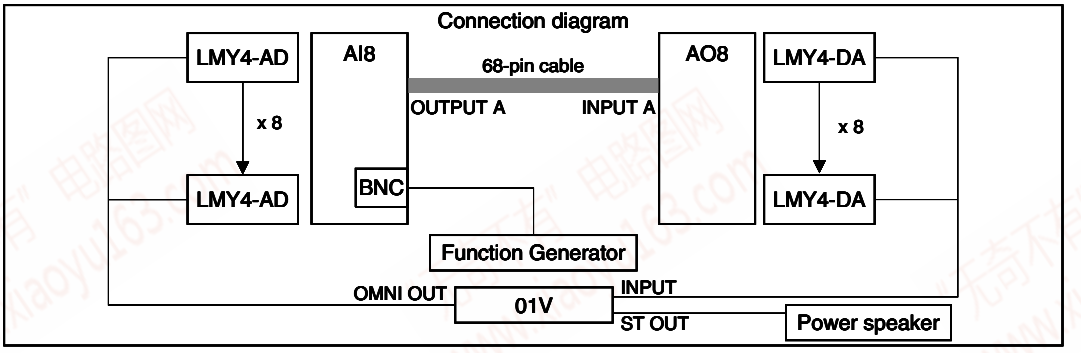
	Range of tolerance
48 kHz	6 nsec max.
44.1 kHz	5 nsec max.

3-3. Fan Operation Check

· Check that the fan rotates while the power is on.

3-4. Sound

· The connections are as in the diagram below.



· Set the AI8 and AO8 sheet UNC DIP switch as below. DIP Switch 8 is not used.

	DIP SW						
	1	2	3	4	5	6	7
AI8	OFF	ON	OFF	OFF	ON	ON	ON
AO8	OFF	OFF	OFF	ON	OFF	OFF	OFF

· For 01V, OSC1kHz is output from OMNI1 OUT and the signal input to INPUT is assigned to ST OUT.

· For AO8, insert the inspection LMY4-DA cards in Slot 1-8.

· For AO8-DA8, insert the shipping LMY4-DA cards in Slot 1-8.

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(1) Fs = 51.12 kHz (48 kHz + 6.5 %)

· Set the function generator to 51.12 kHz.

· Test listen for 30 seconds at all the output terminals and verify that there is no noise.

(2) Fs = 39.69 kHz (44.1 kHz -10 %)

· Set the function generator to 39.69 kHz.

· Test listen for 30 seconds at all the output terminals and verify that there is no noise.

3-5. Firmware Load Test

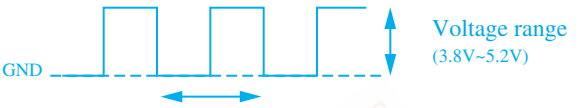
Check that it is possible to load the firmware as in 2-2. using the Input B terminal.

3-6. Inspects word clock output of INPUT A, B

In the test program performed in 3-1, use the oscilloscope to monitor Pin 5 of IC101 of sheet IPC for output A of A18 that is being used as a jig using the timing shown below. Confirm that 44.1 kHz word clock is being output.
(It is good if the wave form like the one shown in Figure 1 appears.)

① Observe at the time of completing the inspection of Port A of the AO8-IPC 2 Test.

② Observe at the time of completing the inspection of Port B of the AO8-IPC 2 Test.



(Figure 1)

4. Factory Settings

· Switch all the sheet UNC DIP switch settings On.

· Front panel

INPUT SELECTOR: A

· Rear panel

WORD CLOCK IN 75 Ω: On

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TEST PROGRAM

A. Preparations for Inspection

•Writing the firmware

This equipment requires firmware. When there are changes to the manufacturing processes and program for this equipment, it is necessary to download the new firmware to FlashRom from a PC. (If there is no firmware loaded or its checksum does not match the correct value, when the power is first switched on the LED on UNC flashes at one second intervals.)

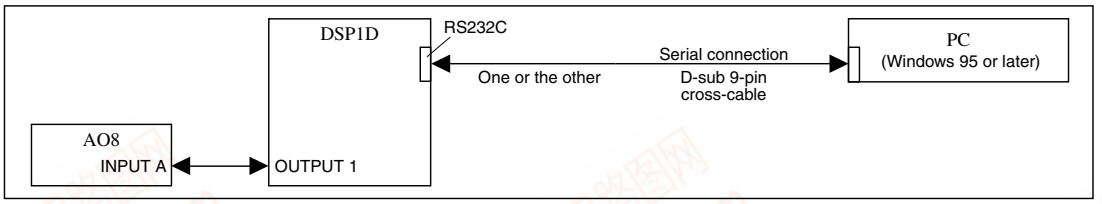
The only sheet for which the firmware must be downloaded is UNC. There are two methods for writing this firmware: to write it indirectly using the CS1D or DSP1D RS232C port or to write it directly to the AO8 UNC sheet. The detailed methods are given below.

•Method for writing firmware using the DSP1D RS232C port

* It is possible to write the AO8 (UNC) firmware from the PC via the CS1D or DSP1D RS232C port. This is the method normally used.

Software used:	PM1DLOAD within PM1D system software
Firmware used:	AI8/AO8 firmware in PM1D system software
Version used:	PM1DLOAD and the AI8/AO8 firmware are files composed using a PM1D SYSTEM SOFTWARE with a version later than the version shown on the cover. (Managed with the already drawn CD-R assembly drawing (3JL-XY714A0).)

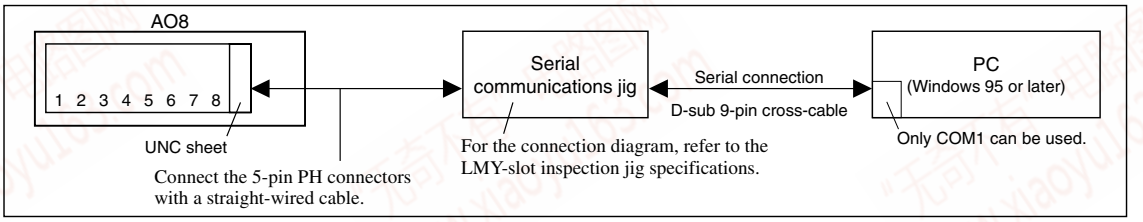
* For the installation and setting methods, refer to the CS1D Test Program Specifications.



1. Install and set the above reference destination files.
2. At the very least, connect as shown in the figure above (when A08). If it is not possible to avoid making signal connections other than these, turn off the power supply for all components other than those relevant to the write object and turn off the control power supply for the volume of other components such as speakers and amplifiers. Please note that at that time, if other AI8/A08 are connected they may be written and because of this, there is no guaranteed that the writing has been properly performed even if the writing shows a successful completion.
3. Use the methods shown in the CS1D Test Program Specifications to write the firmware to the necessary units. After the firmware has been written, check that the versions for all the units are the desired versions.

•Method for writing firmware directly to the AO8 UNC

* When there is some kind of problem or the DSP1D is unavailable due to this equipment's production processes and the firmware can not be written with the method on the previous page, use the method below.



1. Connect the D-sub 9-pin serial cables (cross) and DSP-CHECK board between the 5-pin connector for the target board and the PC. At this time, do not connect other signal lines.
2. After PM1DLOAD starts up, select CardDirect with MODE SELECT, then press OK.
3. Use the setup menu to properly set the serial port to be used and then select AI8/A08 from the pull-down menu.
4. Check on the items for OUTPUT 1 on the list and click the write button.
5. After writing ends, end PM1DLOAD.
6. Switch off the power for AO8 and remove the PH connector, then switch the power for AO8. DSP1D on again and check that it starts up normally. (Operation is normal if an "E3" is displayed in 7-segment display for A08.)

•PM1D inspection PC software preparation

Inspection with this device uses special PC software for inspection.
The software versions are as follows

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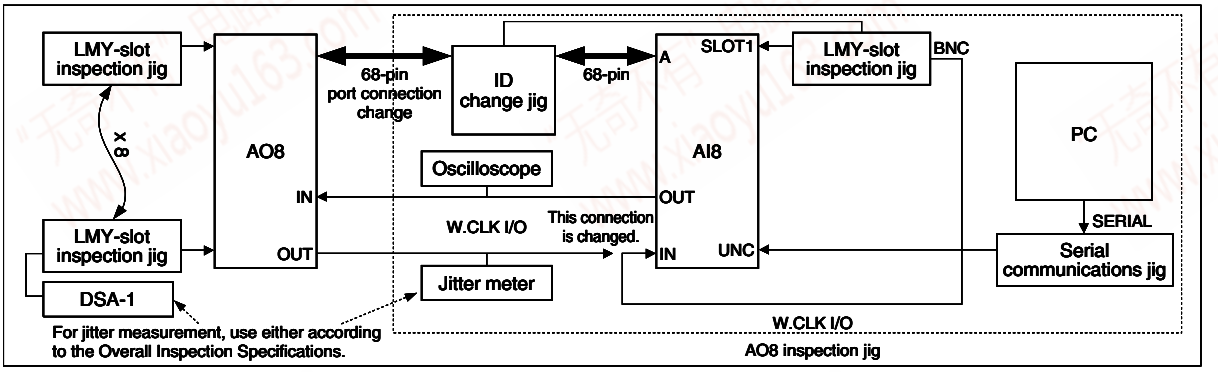
Software used:	PM1D inspection PC software in PM1D system software
Version used:	PM1D system software component files with the version number listed on the cover sheet. (Managed with the already drawn CD-R assembly drawing (3JL-XY714A0).)
Method of preparation:	Follow the instructions in the CS1D test program specifications (Drawing No: KES-92654) titled "Procedure for extracting software groups for production and customer service applications". Once the files have been extracted, refer to the Readme.txt in the FactoryDiag directory.

Before starting inspection, refer to version.txt in the same directory as the firmware shown on the previous page and input the version character string as instructed. (Please refer to page 23, 24)

B. Inspection Method

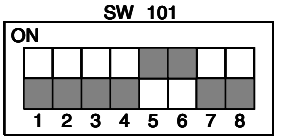
The inspection configuration is shown in the diagram below.

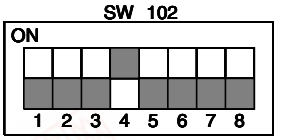


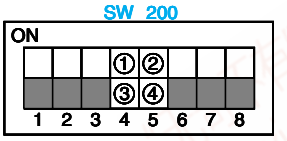
Install the inspection jig to the AO8 to be inspected as in the figure above. Send the inspection commands from the PC via the AI8 to the LMY-slot inspection jig and take in at the PC the results returned from the LMY-slot inspection jig.

* Turn on the power supply for AI8 before making the connection between the AI8 on the jig side and the jig for serial communication. Warning: Do not connect until "E3" is displayed on the AI8 7-segment display.
* Use the LMY-slot inspection jigs inserted into the LMY-slots. For details, see the LMY-slot inspection jig specifications.
* Serial communications jigs are boards that convert the serial interface from the PC. For details, see the LMY-slot inspection jig specifications.
* Set the DIP switches on the ID change jig for AO8 inspection as shown below. For details on the IC change jig, see the LMY-slot inspection jig specifications.

ID change jig DIP switch settings







① MSB/LSB Line = Has been fixed at the low level.
② MSB/LSB Line = Has been set as by pull amp as is.
③ 2CH/4CH Line = Has been fixed at the low level.
④ 2CH/4CH Line = Has been set as by pull amp as is.
In each inspection item, if there are instructions to drop to the low level, set the relevant switches to ON.

PM1D inspection PC software summary

The AO8 is inspected using PC inspection software. This inspection software is common for AI8/AO8/DSP1D/CS1D. For the basic operation methods, menu screen specifications, etc., see the CS1D Test Program Specifications.
Below is the menu for AO8 inspection.

Input the latest version of AO8 UNC before starting the inspection. (This is necessary for the version check.) For the character string to input, refer to version.txt in the same directory as the AI8/AO8 firmware. Details of each check item and the corresponding PC software are shown on the following pages.

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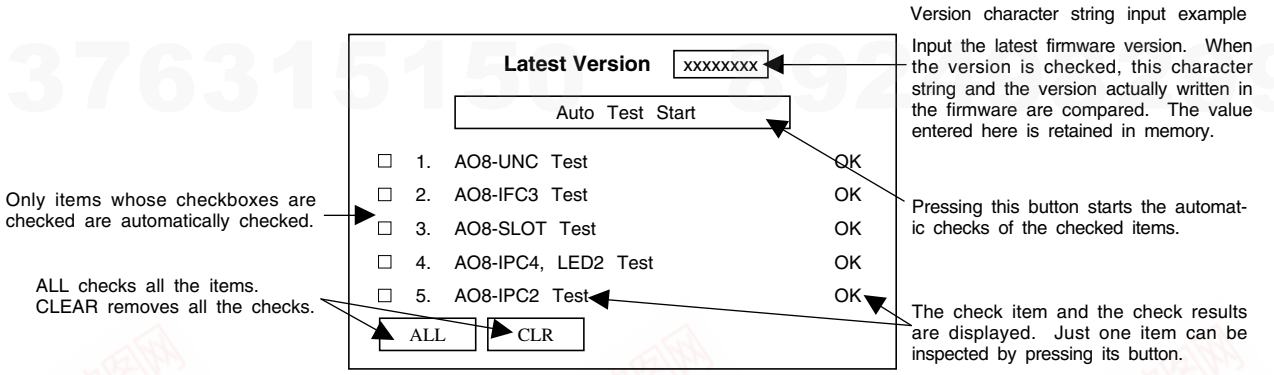

Version character string input example
Input the latest firmware version. When the version is checked, this character string and the version actually written in the firmware are compared. The value entered here is retained in memory.
Latest Version
xxxxxxxx
Auto Test Start
1. AO8-UNC Test OK
2. AO8-IFC3 Test OK
3. AO8-SLOT Test OK
4. AO8-IPC4, LED2 Test OK
5. AO8-IPC2 Test OK
ALL
CLR
Only items whose checkboxes are checked are automatically checked.
ALL checks all the items.
CLEAR removes all the checks.
Pressing this button starts the automatic checks of the checked items.
The check item and the check results are displayed. Just one item can be inspected by pressing its button.

C. Inspection Items

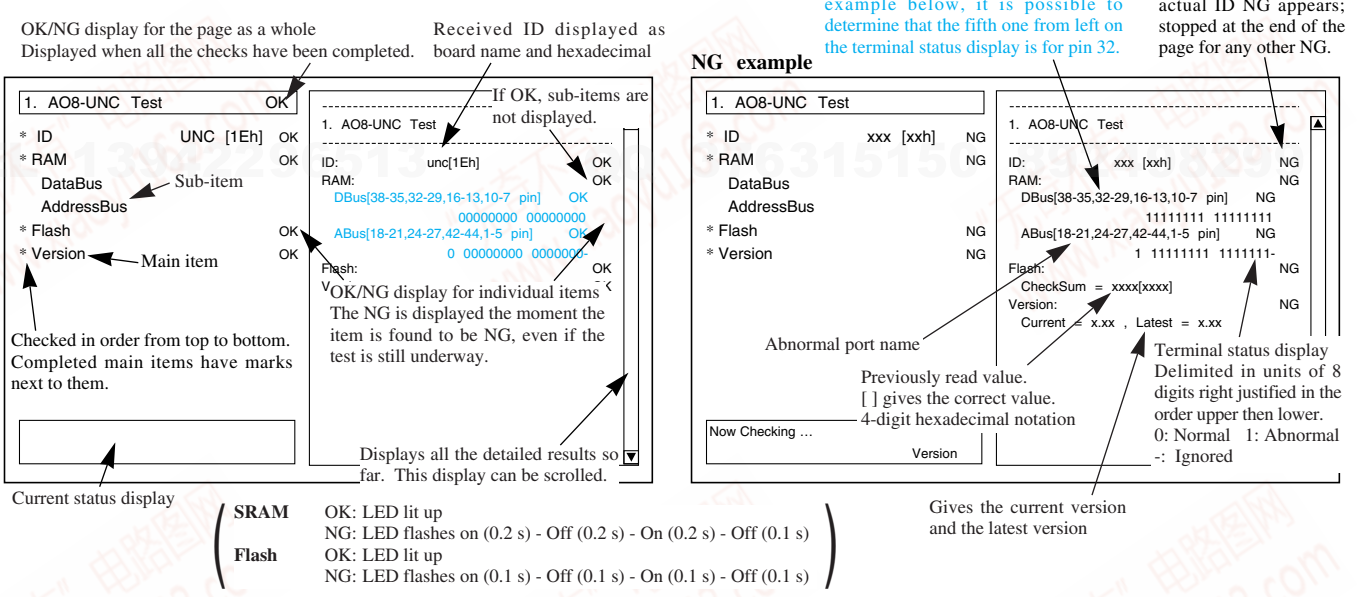
The inspection items are as below. Details of the inspection items are shown on the following pages.

* However, 128 Fs Sync must be normal for the DSP to operate, so there is no special check item.

No.	Item
1	AO8 - UNC test
2	AO8 - IFC3 test
3	AO8 - SLOT test
4	AO8 - IPC4, LED2 test
5	AO8 - IPC2 test

1. AO8 - UNC Test

This test checks around the AO8-UNC.

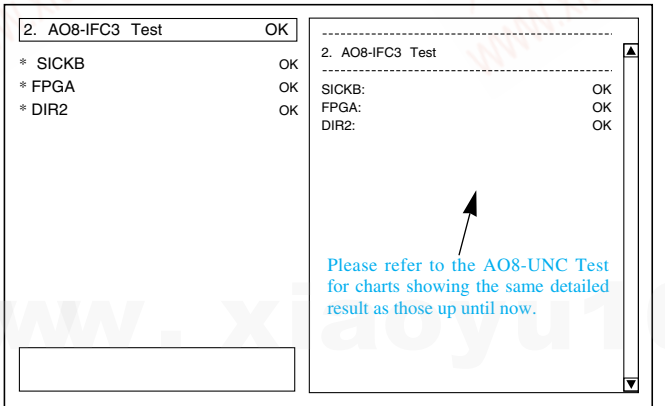

OK/NG display for the page as a whole
Displayed when all the checks have been completed.
Received ID displayed as board name and hexadecimal
Using the terminal status display and the corresponding pin numbers in the example below, it is possible to determine that the fifth one from left on the terminal status display is for pin 32.
Stopped the moment an actual ID NG appears; stopped at the end of the page for any other NG.
NG example
1. AO8-UNC Test OK
* ID UNC [1Eh] OK
* RAM OK
DataBus
AddressBus
Sub-item
* Flash OK
* Version OK
Main item
Checked in order from top to bottom. Completed main items have marks next to them.
Current status display
If OK, sub-items are not displayed.
OK/NG display for individual items
The NG is displayed the moment the item is found to be NG, even if the test is still underway.
Displays all the detailed results so far. This display can be scrolled.
Abnormal port name
Previously read value.
[ ] gives the correct value.
4-digit hexadecimal notation
Terminal status display
Delimited in units of 8 digits right justified in the order upper then lower.
0: Normal 1: Abnormal
-: Ignored
Gives the current version and the latest version
Now Checking ...
Version

SRAM OK: LED lit up
NG: LED flashes on (0.2 s) - Off (0.2 s) - On (0.2 s) - Off (0.1 s)

Flash OK: LED lit up
NG: LED flashes on (0.1 s) - Off (0.1 s) - On (0.1 s) - Off (0.1 s)

2. AO8 - IFC3 Test

This test checks around the AO8-IFC3.


2. AO8-IFC3 Test OK
* SICKB OK
* FPGA OK
* DIR2 OK
SICKB: OK
FPGA: OK
DIR2: OK
Please refer to the AO8-UNC Test for charts showing the same detailed result as those up until now.

NG sample

Please refer to the AO8-UNC Test for NG charts.

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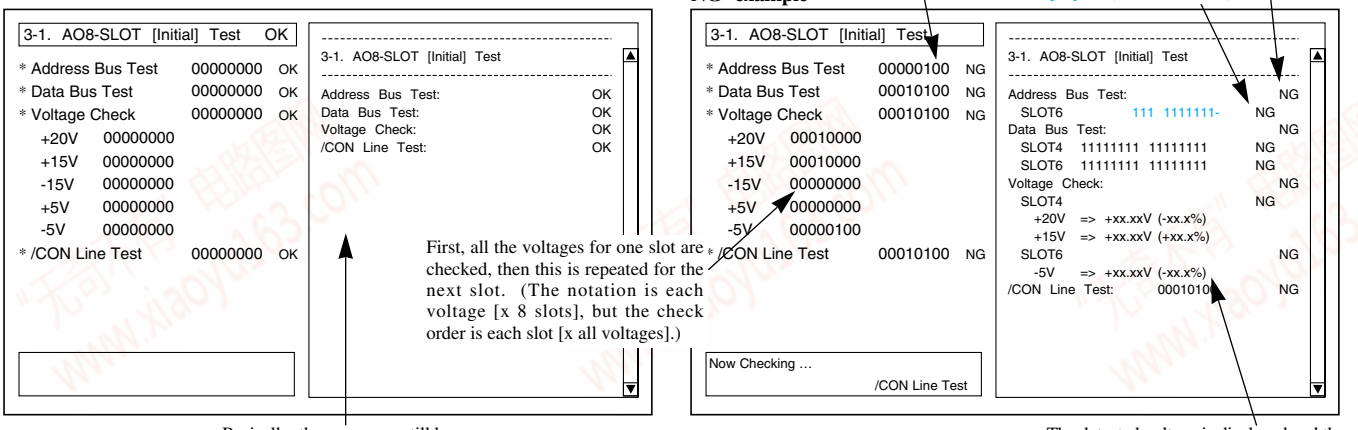
3-1. AO8 - Slot [Initial] Test

Checks slot operation by checking the minimum necessary number of pins.

The results for each slot are displayed in order from the left. A mark is made for each check to show the progress of the checks.
(Blank: Not yet checked; 0: Normal; 1: Abnormal; N: No response)

Stopped the moment an actual Addr.BusTest or DataBusTest NG appears.

Displays which pin number is NG. The main part of the address bus is displayed. (1: NG; 0: OK)



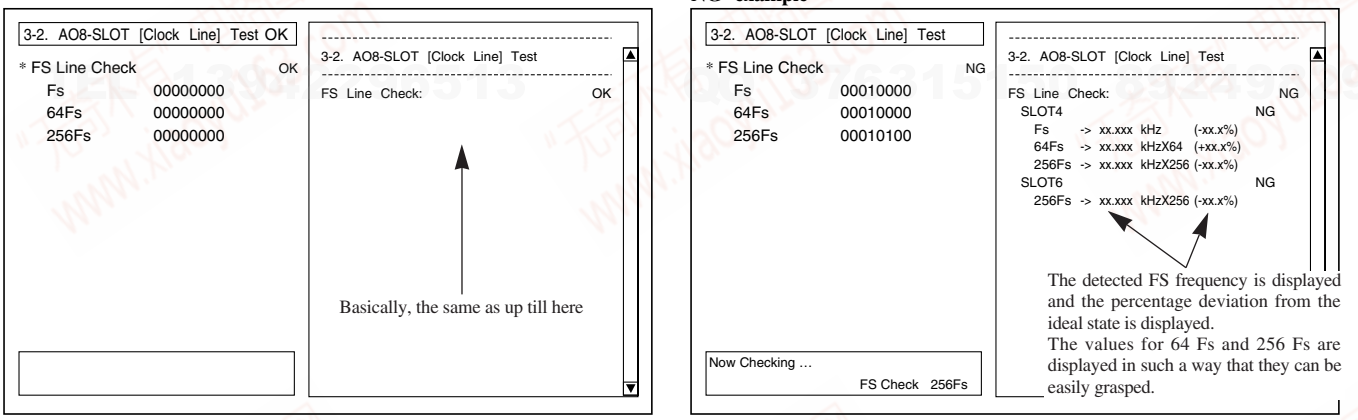
First, all the voltages for one slot are checked, then this is repeated for the next slot. (The notation is each voltage [x 8 slots], but the check order is each slot [x all voltages].)

Basically, the same as up till here

The detected voltage is displayed and the percentage deviation from the ideal state is displayed. This is shown for each slot.

3-2. AO8 - Slot [Clock Line] Test

This test checks around the slot clock.

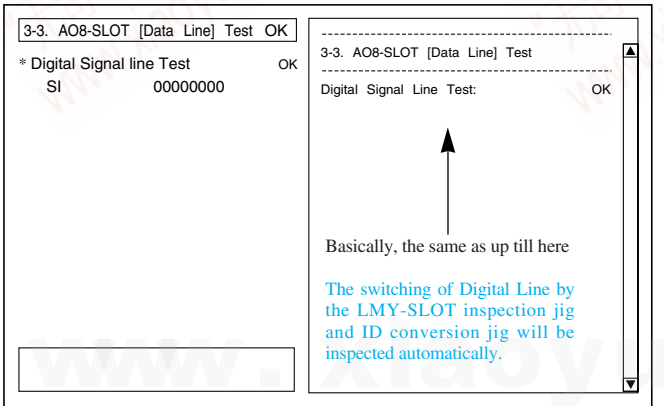


Basically, the same as up till here

The detected FS frequency is displayed and the percentage deviation from the ideal state is displayed.
The values for 64 Fs and 256 Fs are displayed in such a way that they can be easily grasped.

3-3. AO8 - Slot [Data Line] Test

This test checks around the serial communications.


3-3. AO8-SLOT [Data Line] Test OK
* Digital Signal line Test OK
SI 00000000
3-3. AO8-SLOT [Data Line] Test
Digital Signal Line Test: OK

Basically, the same as up till here

The switching of Digital Line by the LMY-SLOT inspection jig and ID conversion jig will be inspected automatically.

NG sample

Please refer to page 24 for NG charts.

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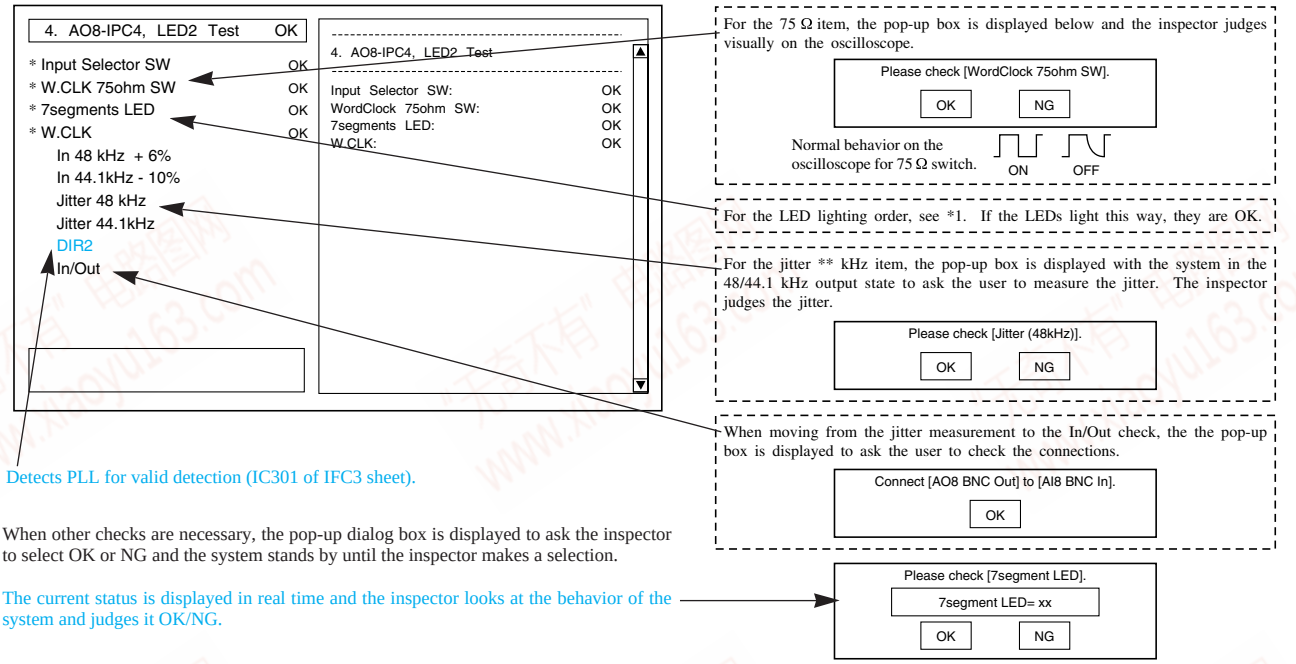
4. AO8 - IPC4, LED2 test

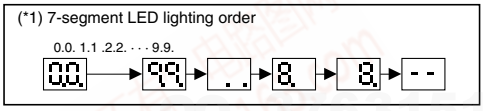
This test checks around the AO8 - IPC4 and LED2.


4. AO8-IPC4, LED2 Test OK
* Input Selector SW OK
* W.CLK 75ohm SW OK
* 7segments LED OK
* W.CLK OK
In 48 kHz + 6%
In 44.1kHz - 10%
Jitter 48 kHz
Jitter 44.1kHz
DIR2
In/Out
4. AO8-IPC4, LED2 Test
Input Selector SW: OK
WordClock 75ohm SW: OK
7segments LED: OK
W.CLK: OK
For the 75 Ω item, the pop-up box is displayed below and the inspector judges visually on the oscilloscope.
Please check [WordClock 75ohm SW].
OK
NG
Normal behavior on the oscilloscope for 75 Ω switch.
ON
OFF
For the LED lighting order, see *1. If the LEDs light this way, they are OK.
For the jitter ** kHz item, the pop-up box is displayed with the system in the 48/44.1 kHz output state to ask the user to measure the jitter. The inspector judges the jitter.
Please check [Jitter (48kHz)].
OK
NG
When moving from the jitter measurement to the In/Out check, the the pop-up box is displayed to ask the user to check the connections.
Connect [AO8 BNC Out] to [AI8 BNC In].
OK
Please check [7segment LED].
7segment LED= xx
OK
NG

Detects PLL for valid detection (IC301 of IFC3 sheet).

When other checks are necessary, the pop-up dialog box is displayed to ask the inspector to select OK or NG and the system stands by until the inspector makes a selection.

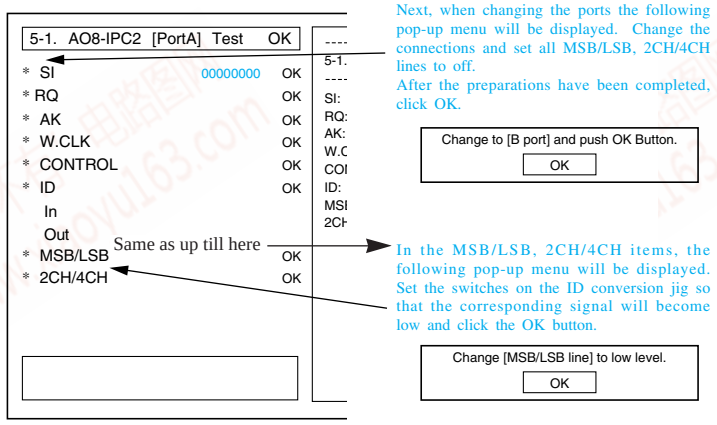
The current status is displayed in real time and the inspector looks at the behavior of the system and judges it OK/NG.



5. AO8 - IPC2 test

This test checks around the AO8 - IPC2. Ports A and B are both checked, so the same procedure is carried out in 5-1 for Port A and in 5-2 for Port B.

Before starting these items, refer to page 23 and set all settings for MSB/LSB,2CH/4CH lines to off.


5-1. AO8-IPC2 [PortA] Test OK
* SI 00000000 OK
* RQ OK
* AK OK
* W.CLK OK
* CONTROL OK
* ID OK
In
Out
* MSB/LSB OK
* 2CH/4CH OK
Same as up till here
Next, when changing the ports the following pop-up menu will be displayed. Change the connections and set all MSB/LSB, 2CH/4CH lines to off.
After the preparations have been completed, click OK.
Change to [B port] and push OK Button.
OK
In the MSB/LSB, 2CH/4CH items, the following pop-up menu will be displayed. Set the switches on the ID conversion jig so that the corresponding signal will become low and click the OK button.
Change [MSB/LSB line] to low level.
OK

NG sample

Please refer to page 24 for NG charts.

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■ ERROR MESSAGES

If an error occurs in the connection to the DSP1D, or if the unit does not lock to the wordclock signal, one of the following error indications appears.

ERROR MESSAGE	DESCRIPTION
E2	The AO8 is connected to the INPUT connector of the DSP1D/DSP1D-EX. Connect the AO8 to the OUTPUT connector.
E3	A cable is disconnected from the INPUT A, B, or C connector on the rear panel, or the connection is made incorrectly. If the connection is proper, replace the cable.
UL	The unit does not lock to the wordclock signal.
UC	The control signal is not being received correctly.
"0.x."	(two dots and the ID number of the OUTPUT connector on the DSP1D/DSP1D-EX) Illuminating dots means that the AO8 is con-nected in Mirror mode from the DSP1D/DSP1D-EX. If ".x ." lights up continuously during Mirror mode operation, the INPUT SELECTOR switch setting matches the setting controlled from the CS1D and the system is operating normally. If the control signal from the CS1D has changed the setting during Mirror mode operation and it does not match the INPUT SELECTOR switch setting any more, this indicator changes in the following order. "0.x." → ". ." → "_.A." (or "_.b.") → ". ." → "0.x." " _.A. " means that the control signal from the CS1D has changed the setting to "A" " _.b. " means that the control signal from the CS1D has changed the setting to "B." During this time period, you can connect or disconnect the cable from the unselected output connector. If you set the INPUT SELECTOR switch so that it matches the setting made via the control signal from the CS1D, " 0.x. " lights up continuously.

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ANALOG OUTPUT BOX

AO 8

PARTS LIST

CONTENTS

OVERALL ASSEMBLY 2
SIDE PANEL ASSEMBLY 4
MOTHER ASSEMBLY 6
ELECTRICAL PARTS ..... 7~12

Notes : DESTINATION ABBREVIATIONS

A:	Australian model	M:	South African model
B:	British model	O:	Chinese model
C:	Canadian model	Q:	South-east Asia model
D:	German model	T:	Taiwan model
E:	European model	U:	U.S.A. model
F:	French model	V:	General export model (110 V)
H:	North European model	W:	General export model (220 V)
I :	Indonesian model	N,X:	General export model
J :	Japanese model	Y:	Export model

WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specification equal to those originally installed.

- The numbers in " QTY " show quantities for each unit.
- The parts with " **- -** " in " **PART NO.** " are not available as spare parts.
- The mark " } " in the remarks column indicates that these parts are interchangeable.
- The second letter of the shaded ( ) part number is O, not zero.
- The second letter of the shaded ( ) part number is I, not one.

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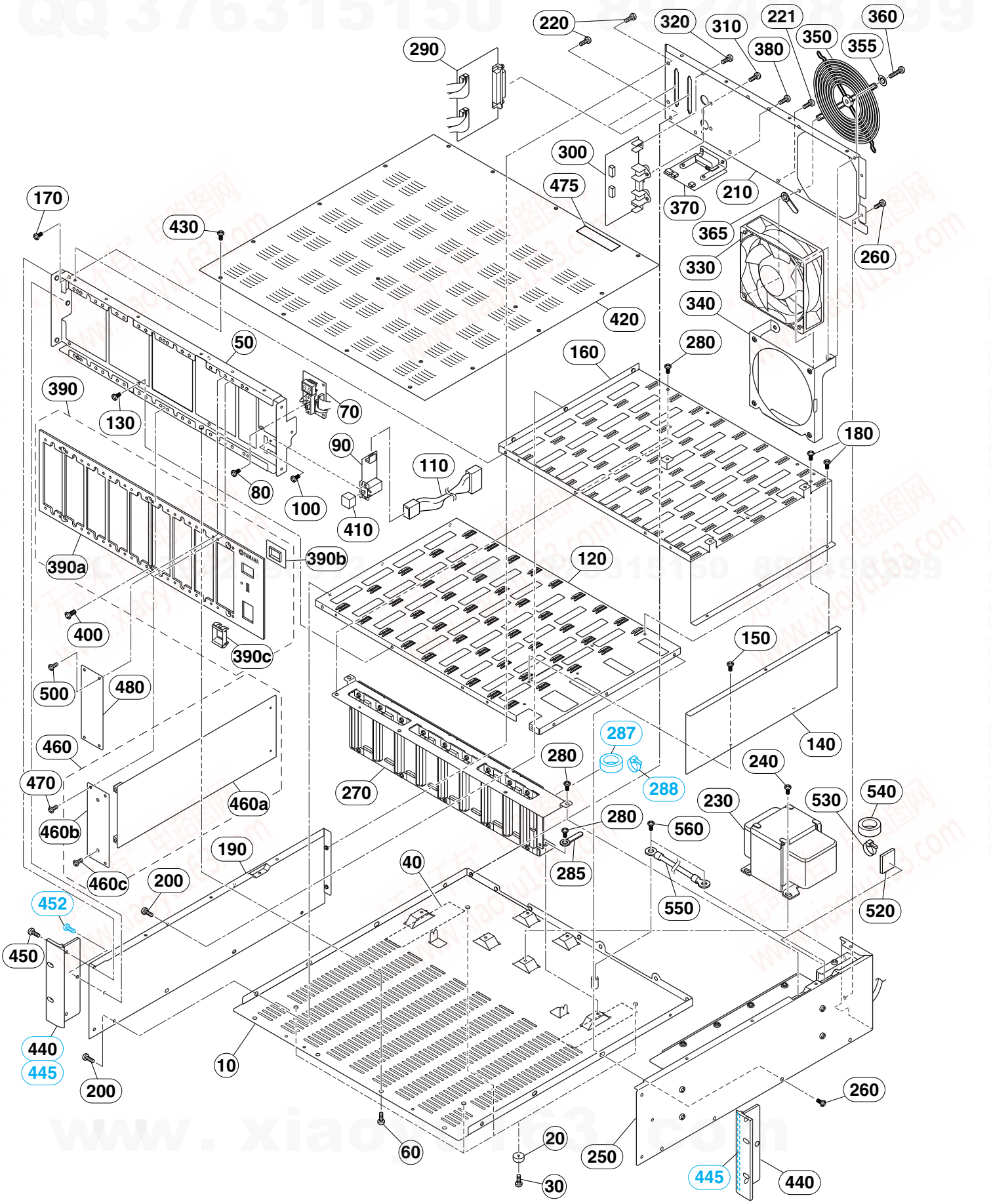
OVERALL ASSEMBLY



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	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
			OVERALL ASSEMBLY			AO8		
		- -	Overall Assembly			J (V479550)		
		- -	Overall Assembly			U,V (V479560)		
		- -	Overall Assembly			H,W (V479570)		
		- -	Overall Assembly			B (V479580)		
*	10	V4277100	Bottom Chassis					15
	20	CB806590	Leg	BL			4	03
	30	VR138400	Bind Head Tapping Screw-B	4.0X12 MFZN2BL			4	01
*	40	V4278900	PET Sheet				3	02
*	50	V4277800	Front Shassis					08
	60	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			4	01
*	70	V49136S0	Circuit Board	AO8 LED2 (IPCOM)				
	80	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL			2	01
*	90	V49137S0	Circuit Board	AO8 PSB (AOCOM)				
	100	VB659000	Bind Head Screw	3.0X8 MFZN2BL			2	01
*	110	V5087200	Connector Assembly	VH4P-VH3P #18				05
*	120	V4277900	Chassis	LOWER				11
	130	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			4	01
*	140	V4914400	Shield					06
	150	VP157900	Bind Head Tapping Screw-B	A3.0X6 MFZN2BL			2	01
*	160	V4278000	Chassis	UPPER				08
	170	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			3	01
	180	VP157900	Bind Head Tapping Screw-B	A3.0X6 MFZN2BL			5	01
*	190	V4277200	Side Panel	LEFT				09
	200	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			7	01
*	210	V4279000	Rear Panel					10
	220	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			6	01
	221	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL				01
⚠ *	230	XW261A00	Power Transformer			J		17
⚠ *	230	XW262A00	Power Transformer			U,V		18
⚠ *	230	XW263B00	Power Transformer			H,B,W		17
	240	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			4	01
	250	- -	Side Panel Assembly	RIGHT		J (V479360)		
	250	- -	Side Panel Assembly	RIGHT		U,V (V479370)		
	250	- -	Side Panel Assembly	RIGHT		H,W (V479380)		
	250	- -	Side Panel Assembly	RIGHT		B (V479390)		
	260	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			7	01
	270	- -	Mother Assembly			(V479300)		
	280	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			7	01
	285	CB817510	Cord Binder	S-14B			1	03
	287	VC362700	Ferrite Core	FR25/15/12-1400L				04
	288	CB069250	Cord Holder	BK-1				01
*	290	V41302S0	Circuit Board	AO8 IPC2			2	
*	300	V41293S0	Circuit Board	AO8 IPC4 (IPCOM)				
	310	VS863000	Bonding Screw	3.0X6 MFZN2BL			2	01
	320	EG340290	Bind Head Screw	A4.0X6 MFZN2BL			2	01
*	330	V5789100	Motor	DC KDE1208PTS3-6		Fan		09
*	340	V6444900	Fan Guide					02
	350	VK949100	Fan Guard	FG-08UL				06
	355	ET800070	Toothed Lock Washer	A4.0 MFZN2BL			4	01
	360	EG340110	Bind Head Screw	4.0X16 MFZN2BL			4	01
	365	CB817510	Cord Binder	S-14B			2	03
*	370	V46492S0	Circuit Board	AO8 DR (AOCOM)				
	380	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL			2	01
	390	- -	Front Panel Assembly			(V479200)		
*	390a	V4279300	Front Panel					16
*	390b	V4278800	LED Cover	7 SEG.				05
	390c	VL813000	Escutcheon, Power Switch					03
	400	VA221200	Flat Head Screw	4.0X8 MFZN2BL			6	01
	410	VL812900	Power Switch Knob			POWER ON/OFF		03
*	420	V4278200	Top Panel					13
	430	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL			17	01
*	440	V7447100	Mount Bracket	3U			2	09
*	445	V6676700	Soft Gasket				2	
	450	VS153600	Oval Head Screw	4.0X8 MFZN2BL			8	01
	452	V6221000	Oval Head Screw	B4.0X10 MFZN2BL			2	01
	460	- -	UNC Card Assembly			(V479500)		
*	460a	V41287S0	Circuit Board	AI8 UNC				
*	460b	V4278600	UNC Plate					04
	460c	VS154500	Bonding Screw	4.0X8 MFZN2BL			2	01

*: New Parts

RANK: Japan only

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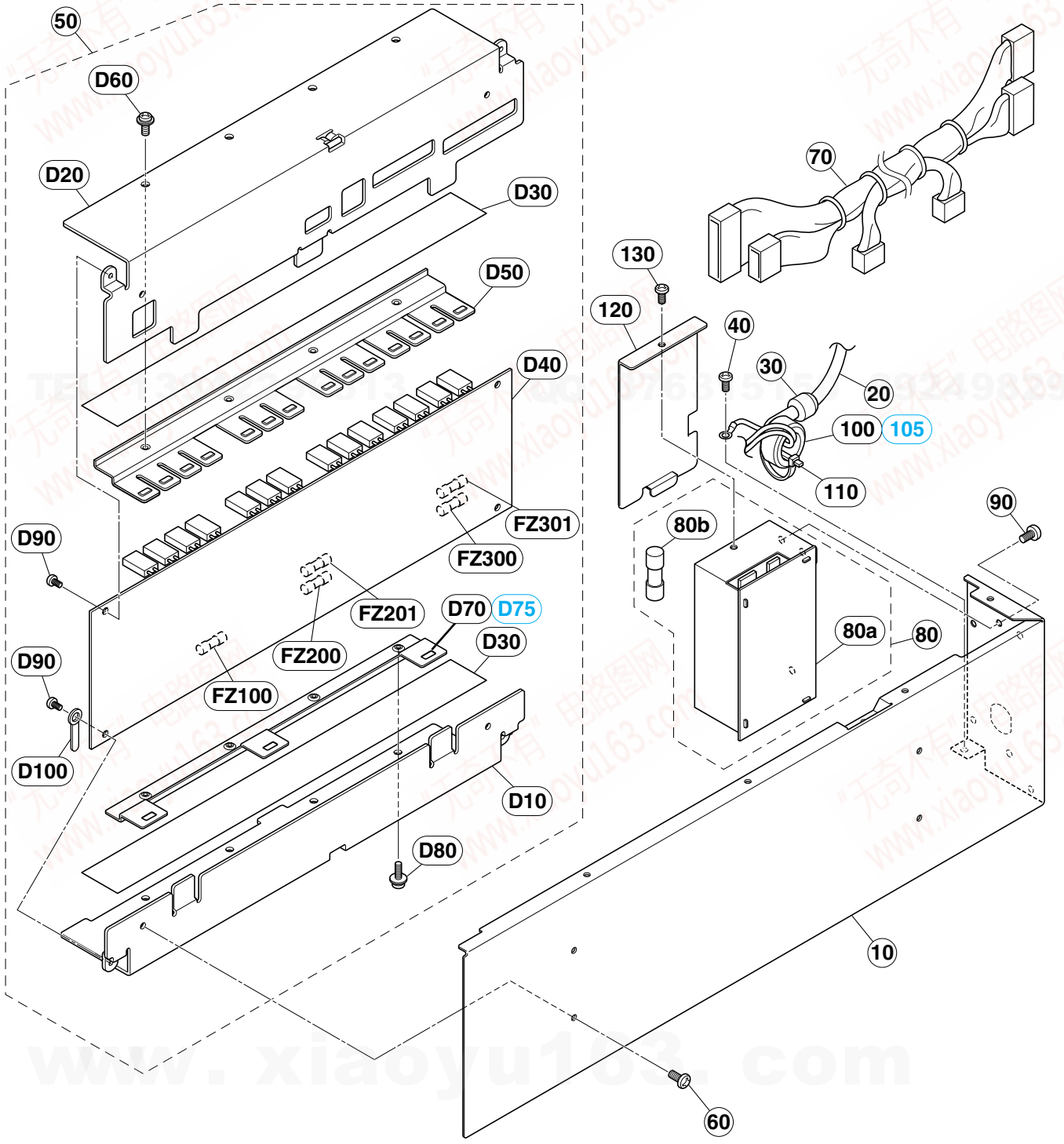
REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
470	**VS863000**	Bonding Screw	3.0X6 MFZN2BL			4	01
475	**- -**	Label, Caution			U (V533510)		
* 480	**V4278500**	Blank Panel				8	07
500	**VS863000**	Bonding Screw	3.0X6 MFZN2BL			32	01
520	**CB835590**	Holder	TMS-20			2	01
530	**CB069250**	Cord Holder	BK-1			2	01
540	**VC362700**	Ferrite Core	FR25/15/12-1400L			2	04
550	**- -**	Connector Assembly	Earth #18		(V572480)		
560	**VP156800**	Bind Head Screw	A4.0X8 MFZN2BL			2	01
570	**VY734700**	Clamp Filter	ZCAT2032-0930				
		ACCESSORIES					
*	**V4789400**	Cable, SCSI	DHK-HA2-3000				27

SIDE PANEL ASSEMBLY



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	REF NO.	PART NO.	DESCRIPTION			REMARKS		QTY	RANK
			SIDE PANEL ASSEMBLY	RIGHT		AO8			
		- -	Side Panel Assembly	RIGHT		J	(V479360)		
		- -	Side Panel Assembly	RIGHT		U,V	(V479370)		
		- -	Side Panel Assembly	RIGHT		H,W	(V479380)		
		- -	Side Panel Assembly	RIGHT		B	(V479390)		
*	10	V5302700	Side Panel	RIGHT		J			12
*	10	V5302800	Side Panel	RIGHT		U,V			12
*	10	V5302900	Side Panel	RIGHT		H,B,W			12
⚠	20	VS228900	AC Cord Assembly	2P 15A		J			09
⚠	20	VS229000	AC Cord Assembly	3P 10A		U,V			10
⚠	20	VS229100	AC Cord Assembly	3P 6A		H,W			10
⚠	20	VS229200	AC Cord Assembly	3P 10A		B			11
	30	CB806850	Cord Strain Relief	SR-6N3-4		J			02
	30	CB811230	Cord Strain Relief	SR-6N-4		U,V			02
	30	CB032840	Cord Strain Relief	SR-5N-4		H,B,W			03
	40	VP156800	Bind Head Screw	A4.0X8 MFZN2BL		U,H,B,V,W			01
⚠ *	50	V47943S0	DC Assembly			J,U,V			
⚠ *	50	V47944S0	DC Assembly			H,B,W			
	60	EG340290	Bind Head Screw	A4.0X6 MFZN2BL				4	01
*	70	V5099200	Connector Assembly	PH-DC					16
⚠	80	- -	AC Assembly			J,U,V	(V479470)		
⚠	80	- -	AC Assembly			H,B,W	(V479480)		
*	80a	V46487S0	Circuit Board	AO8 AC (AOCOM)					
⚠	80b	KB003620	Fuse	4.00A JU		J,U,V			01
⚠	80b	KB003090	Fuse	3.15A S		H,B,W			01
	90	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL				3	01
	100	VC362700	Ferrite Core	FR25/15/12-1400L					04
	105	CB835590	Cord Clamp	TMS-20					01
	110	CB069250	Cord Holder	BK-1					01
*	120	V4914300	AC Shield Cover						03
	130	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL					01
*		V47943S0	DC Assembly			J,U,V			
*		V47944S0	DC Assembly			H,B,W			
*	D10	V4914800	Heat Sink	DC LOW					07
*	D20	V4914900	Heat Sink	DC UP					07
*	D30	V4276400	Isolation Sheet	DC				2	05
*	D40	V46490S0	Circuit Board	AO8 DC (AOCOM)					
*	D50	V4276600	Holder	TR					09
	D60	EL200020	Pan Head Screw	SP 4.0X8 MFZN2Y				4	01
*	D70	V4914600	Holder	BR					07
	D75	CB817510	Cord Binder	S-14B				3	03
	D80	EL200020	Pan Head Screw	SP 4.0X8 MFZN2Y				4	01
	D90	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL				4	01
	D100	CB817510	Cord Binder	S-14B					03
⚠	FZ100	VS823300	Fuse	8.00A JU		J,U,V			02
⚠	FZ100	KB003250	Fuse	6.30A S		H,B,W			01
⚠	FZ200	KB003630	Fuse	5.00A JU		J,U,V			01
⚠	FZ200	KB003100	Fuse	4.00A S		H,B,W			01
⚠	FZ201	KB003630	Fuse	5.00A JU		J,U,V			01
⚠	FZ201	KB003100	Fuse	4.00A S		H,B,W			01
⚠	FZ300	KB003630	Fuse	5.00A JU		J,U,V			01
⚠	FZ300	KB003100	Fuse	4.00A S		H,B,W			01
⚠	FZ301	KB003630	Fuse	5.00A JU		J,U,V			01
⚠	FZ301	KB003100	Fuse	4.00A S		H,B,W			01

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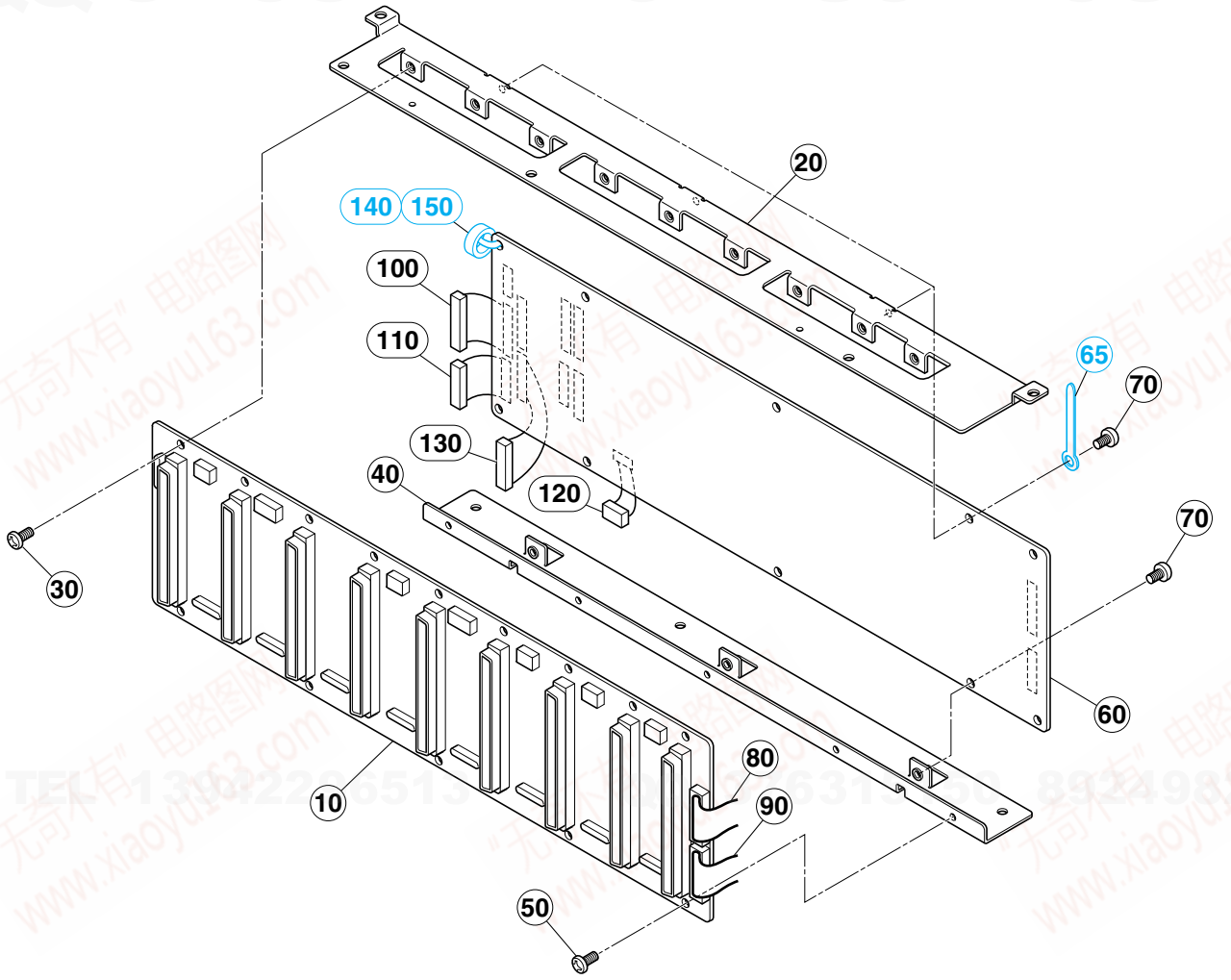
MOTHER ASSEMBLY



REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
	- -	MOTHER ASSEMBLY			AO8 (V479300)		
* 10	V41288S0	Circuit Board	AI8 UNC				
* 20	V4278300	Support Metal	1				09
30	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL			9	01
* 40	V4278100	Support Metal	2				07
50	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL			5	01
* 60	V41300S0	Circuit Board	AO8 IFC3				
65	CB817510	Cord Binder	S-14B			2	03
70	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL			6	01
80	- -	Cable, FFC	P=1.25-K-20-80		(V508550)		
90	- -	Cable, FFC	P=1.25-K-30-80		(V508560)		
100	- -	Connector Assembly	PH&PH 13P 80 #28		(V508800)	4	
110	- -	Connector Assembly	PH&PH 10P 80 #28		(V508810)	2	
120	- -	Connector Assembly	PH&PH 5P 200L #28		(VN38360)		
130	- -	Connector Assembly	PH&PH 12P 80 #28		(V508820)	2	
140	VC362700	Ferrite Core	FR25/15/12-1400L				04
150	CB069250	Cord Holder	BK-1				01

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ELECTRICAL PARTS

	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
			ELECTRICAL PARTS			AO8		
*		V46487S0	Circuit Board	AO8 AC (AOCOM)		(XW295C0)		
*		V46490S0	Circuit Board	AO8 DC (AOCOM)		(XW295C0)		
*		V46492S0	Circuit Board	AO8 DR (AOCOM)		(XW295C0)		
*		V49137S0	Circuit Board	AO8 PSB (AOCOM)		(XW295C0)		
*		V41302S0	Circuit Board	AO8 IPC2		(XW289A0)		
*		V41300S0	Circuit Board	AO8 IFC3		(XW287B0)		
*		V41293S0	Circuit Board	AO8 IPC4 (IPCOM)		(XW286B0)		
*		V49136S0	Circuit Board	AO8 LED2 (IPCOM)		(XW286B0)		
*		V41288S0	Circuit Board	AI8 MB1		(XW282A0)		
*		V41287S0	Circuit Board	AI8 UNC		(XW281B0)		
*		V46487S0	Circuit Board	AO8 AC (AOCOM)		(XW295C0)		
*		V46490S0	Circuit Board	AO8 DC (AOCOM)		(XW295C0)		
*		V46492S0	Circuit Board	AO8 DR (AOCOM)		(XW295C0)		
*		V49137S0	Circuit Board	AO8 PSB (AOCOM)		(XW295C0)		
		VH610100	Bind Head Screw	3.0X14 MFZN2BL				01
		VR144900	Bonding Tapping Screw-B	3.0X6 MFZN2BL				
		VA078900	Jumper Wire	0.55				
*		V4276300	AC Shield Metal					04
*		V4797200	Transistor Holder					07
		VN057300	Heat Sink					08
*		V5101700	Insulation Sheet					01
*	C104	V4871100	Electrolytic Cap.	33000 16.0V				06
	C106	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C108	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C110	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C112	UR838100	Electrolytic Cap.	100.00 16.0V				01
*	C204	V4871300	Electrolytic Cap.	22000 16				05
*	C205	V4871300	Electrolytic Cap.	22000 16				05
	C208	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C209	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C212	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C213	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C216	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C217	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C304	VR499300	Electrolytic Cap.	4700 35.0V				05
	C305	VR499300	Electrolytic Cap.	4700 35.0V				05
	C308	UR848100	Electrolytic Cap.	100.00 25.0V				01
	C309	UR848100	Electrolytic Cap.	100.00 25.0V				01
	C312	UR848100	Electrolytic Cap.	100.00 25.0V				01
	C313	UR848100	Electrolytic Cap.	100.00 25.0V				01
*	C400	V5170300	Capacitor	0.220 275V U.C.S				01
	C500	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C501	UR848220	Electrolytic Cap.	220.00 25.0V				01
	C503	UR838100	Electrolytic Cap.	100.00 16.0V				01
	C600	V3311600	Capacitor-KH	0.010 250V J.U.C.S				01
		VS589000	Ceramic Capacitor-E	4700P 500V M				01
		FG644100	Ceramic Capacitor-F	0.0100 50V Z				01
		UA355100	Mylar Capacitor	0.1000 50V J				01
	CN001	LB932050	Base Post Connector	VH 5P TE				01
	CN002	LB932030	Base Post Connector	VH 3P TE				01
	CN100	VE352600	Connector Base Post	PH-14P TE				01
	CN101	VB390000	Connector Base Post	PH 4P TE				01
	CN200	VB390200	Connector Base Post	PH 6P TE				01
	CN201	VB390200	Connector Base Post	PH 6P TE				01
	CN300	VB389800	Connector Base Post	PH 2P TE				01
	CN301	VB390000	Connector Base Post	PH 4P TE				01
	CN302	VB389800	Connector Base Post	PH 2P TE				01
	CN303	VB390000	Connector Base Post	PH 4P TE				01
	CN400	VG879900	Base Post Connector	VA 2P TE				01
	CN401	LB933040	Base Post Connector	VH 4P SE				01
	CN402	LB933030	Base Post Connector	VH 3P SE				01
	CN500	VB858100	Connector Base Post	PH 2P SE				01
	CN502	VB858200	Connector Base Post	PH 3P SE				01
	CN600	LB933030	Base Post Connector	VH 3P SE				01
	D100	VB481900	Diode	11ES4				01
	-107	VB481900	Diode	11ES4				01
	D200	VB481900	Diode	11ES4				01
	-211	VB481900	Diode	11ES4				01

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REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
D300	**VB481900**	Diode	11ES4				01
-307	**VB481900**	Diode	11ES4				01
DB100	**VM621400**	Diode Stack	RBV-1506				05
DB200	**VT682400**	Diode Stack	D6SB60L 6.0A 600V				04
DB300	**VT682400**	Diode Stack	D6SB60L 6.0A 600V				04
EM100	**FZ006970**	LC Filter	LS MT Y223NB				02
-103	**FZ006970**	LC Filter	LS MT Y223NB				02
EM200	**FZ006970**	LC Filter	LS MT Y223NB				02
-205	**FZ006970**	LC Filter	LS MT Y223NB				02
EM300	**FZ006920**	LC Filter	LS MT B271KB				01
-303	**FZ006920**	LC Filter	LS MT B271KB				01
FZ100	**VP206500**	Fuse Holder	EYF-52BC				01
FZ200	**VP206500**	Fuse Holder	EYF-52BC				01
FZ201	**VP206500**	Fuse Holder	EYF-52BC				01
FZ300	**VP206500**	Fuse Holder	EYF-52BC				01
FZ301	**VP206500**	Fuse Holder	EYF-52BC				01
FZ400	**VP206500**	Fuse Holder	EYF-52BC				01
FZ500	**VG297000**	IC Protector	ICP-F20				02
IC100	**XH672A00**	IC	PQ05RF2		REGULATOR +5V 2A		04
-102	**XH672A00**	IC	PQ05RF2		REGULATOR +5V 2A		04
* IC103	**XW196A00**	IC	UPC2933HF		REGULATOR +3.3V		03
IC200	**XR607A00**	IC	UPC2405AHF		REGULATOR +5V		04
IC201	**XK309A00**	IC	NJM7905FA		REGULATOR -5V		03
IC202	**XR607A00**	IC	UPC2405AHF		REGULATOR +5V		04
IC203	**XK309A00**	IC	NJM7905FA		REGULATOR -5V		03
IC204	**XR607A00**	IC	UPC2405AHF		REGULATOR +5V		04
IC205	**XK309A00**	IC	NJM7905FA		REGULATOR -5V		03
IC300	**XR608A00**	IC	UPC2415AHF		REGULATOR +15V		04
IC301	**XD854A00**	IC	NJM7915FA		REGULATOR -15V		03
IC302	**XR608A00**	IC	UPC2415AHF		REGULATOR +15V		04
IC303	**XD854A00**	IC	NJM7915FA		REGULATOR -15V		03
IC304	**XD631A00**	IC	PST518B-TP		SYSTEM RESET		02
K700	**BB069510**	Land Terminal	A-8				01
-703	**BB069510**	Land Terminal	A-8				01
* L400	**V4122100**	Line Filter	PLH10A7003R6P02				02
R502	**VC757100**	Metal Oxide Film Resistor	22.0 2W J				01
R504	**VC740100**	Metal Oxide Film Resistor	1.0 1W J				01
	HF456330	Carbon Resistor	3.3K 1/4 J				01
	HF456470	Carbon Resistor	4.7K 1/4 J				01
	HF457100	Carbon Resistor	10.0K 1/4 J				01
⚠ SW600	**V3127000**	Push Switch	ESB92S23B J.U.C.S		POWER ON/OFF		02
TR300	**IA101590**	Transistor	2SA1015 O,Y				01
TR500	**IB059600**	Transistor	2SB596LBB O,Y				04
TR501	**IC1815M0**	Transistor	2SC1815 Y,GR				01
TR502	**IC1815M0**	Transistor	2SC1815 Y,GR				01
ZD500	**VQ554100**	Zener Diode	MTZJ7.5A 7.5V				01
W0013	**--**	GND Wire	L=180		(V744560)		
*	**V41302S0**	Circuit Board	AO8 IPC2		(XW289A0)		
C108	**UF038100**	Electrolytic Cap. (chip)	100 16V				01
	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z				01
* CN100	**V4158600**	Connector	230R(SCSI) 68P SE		INPUT A/B		06
CN101	**VF283100**	Connector Base Post	PH 13P TE				01
CN102	**VF283100**	Connector Base Post	PH 13P TE				01
CN103	**VB390600**	Connector Base Post	PH 10P TE				01
CN104	**VB390800**	Connector Base Post	PH 12P TE				01
DA100	**VV556300**	Diode Array	DAN217 0.3A X2				01
-143	**VV556300**	Diode Array	DAN217 0.3A X2				01
DA147	**VV556300**	Diode Array	DAN217 0.3A X2				01
-156	**VV556300**	Diode Array	DAN217 0.3A X2				01
EM100	**VL534100**	LC Filter	NFA81R00C101				05
-102	**VL534100**	LC Filter	NFA81R00C101				05
EM104	**VL534100**	LC Filter	NFA81R00C101				05
-106	**VL534100**	LC Filter	NFA81R00C101				05
EM108	**FZ006970**	LC Filter	LS MT Y223NB				02
IC100	**XU815A00**	IC	DS26C32ATMX		LINE RECEIVER		06
-103	**XU815A00**	IC	DS26C32ATMX		LINE RECEIVER		06
IC104	**XT487A00**	IC	TC74VHC245F		TRANSCEIVER		03
IC105	**XT487A00**	IC	TC74VHC245F		TRANSCEIVER		03
IC106	**XU815A00**	IC	DS26C32ATMX		LINE RECEIVER		06

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	REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	IC107	**XU996A00**	IC	AM26LS31CNSR	LINE DRIVER		05
	RA100	**RE047100**	Resistor Array	10KX4			01
	-103	**RE047100**	Resistor Array	10KX4			01
		RD254100	Carbon Resistor (chip)	10.0 0.1 J			01
		RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
		RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
		RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
		RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
		RD257470	Carbon Resistor (chip)	47.0K 0.1 J			01
*		**V41300S0**	Circuit Board	AO8 IFC3	(XW287B0)		
	C112	**UF038100**	Electrolytic Cap. (chip)	100 16V			01
	C116	**UF017220**	Electrolytic Cap. (chip)	22 6.3V			01
	C118	**UF038100**	Electrolytic Cap. (chip)	100 16V			01
	C304	**UF037470**	Electrolytic Cap. (chip)	47 16V			01
	-306	**UF037470**	Electrolytic Cap. (chip)	47 16V			01
	C404	**UF037470**	Electrolytic Cap. (chip)	47 16V			01
	-406	**UF037470**	Electrolytic Cap. (chip)	47 16V			01
		UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
		UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
		UB245220	Monolithic Ceramic Cap.	F 0.220 25V Z			01
		UB445330	Monolithic Ceramic Cap.	F 0.330 16V Z			01
		VR327300	Mylar Capacitor (chip)	0.0820 16V J			01
	CN101	**VQ045900**	Connector, FFC	52044 30P SE			02
	CN102	**VQ045000**	Connector, FFC	52044 20P SE			01
	CN103	**VE352600**	Connector Base Post	PH-14P TE			01
	CN104	**VB390200**	Connector Base Post	PH 6P TE			01
	CN105	**VF728300**	Wire Trap	52147 6P TE			01
	CN106	**VB390100**	Connector Base Post	PH 5P TE			01
	CN201	**VB390600**	Connector Base Post	PH 10P TE			01
	CN401	**VK025200**	Wire Trap	52147 8P TE			01
	-408	**VK025200**	Wire Trap	52147 8P TE			01
	CN601	**VF283100**	Connector Base Post	PH 13P TE			01
	CN602	**VF283100**	Connector Base Post	PH 13P TE			01
	CN603	**VB390600**	Connector Base Post	PH 10P TE			01
	CN604	**VB390800**	Connector Base Post	PH 12P TE			01
	CN605	**VF283100**	Connector Base Post	PH 13P TE			01
	CN606	**VF283100**	Connector Base Post	PH 13P TE			01
	CN607	**VB390600**	Connector Base Post	PH 10P TE			01
	CN608	**VB390800**	Connector Base Post	PH 12P TE			01
	EM101	**FZ006970**	LC Filter	LS MT Y223NB			02
	EM102	**FZ006970**	LC Filter	LS MT Y223NB			02
	IC101	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
	-103	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
*	IC104	**IS000800**	IC	HD74LV08AFPEL	AND		01
*	IC105	**XY102A00**	IC	HD74LVU04AFPEL	INVERTER		01
	IC106	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
	IC107	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
*	IC108	**XY094A00**	IC	LT1118CST-2.5	REGULATOR		08
*	IC201	**XW239A00**	IC	EPC1PC8	EPROM 1M		09
*	IC202	**XY217A00**	IC	EPF10K50EQC208	FPGA		25
	IC301	**XG948E00**	IC	YM3436DK	DIR2		11
	-303	**XG948E00**	IC	YM3436DK	DIR2		11
*	IC309	**XW422A00**	IC	M51953AFP	SYSTEM RESET		01
*	IC310	**IS000800**	IC	HD74LV08AFPEL	AND		01
*	IC311	**IS000400**	IC	HD74LV04AFPEL	INVERTER		01
	IC401	**XG948E00**	IC	YM3436DK	DIR2		11
	-403	**XG948E00**	IC	YM3436DK	DIR2		11
	IC404	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
	-407	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
*	IC408	**IS000400**	IC	HD74LV04AFPEL	INVERTER		01
*	IC409	**IS000800**	IC	HD74LV08AFPEL	AND		01
*	IC410	**XW422A00**	IC	M51953AFP	SYSTEM RESET		01
*	-412	**XW422A00**	IC	M51953AFP	SYSTEM RESET		01
	IC501	**XU235A00**	IC	SGH609080F-47F	ATSC		10
	-504	**XU235A00**	IC	SGH609080F-47F	ATSC		10
	IC601	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
	IC602	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03
	IC603	**XV242A00**	IC	TCVHCT245AF	TRANSCEIVER		03
	IC604	**XT487A00**	IC	TC74VHC245F	TRANSCEIVER		03

*: New Parts

RANK: Japan only

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	REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	-606	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
	IC607	XT487A00	IC	TCVHCT245AF	TRANSCEIVER		03
	IC608	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
	L101	VS740100	Chip Inductance	BLM21B751S 2125			03
	-124	VS740100	Chip Inductance	BLM21B751S 2125			03
	L301	GE300610	Ferrite Bead	BL02RN1-R62T4			01
	-303	GE300610	Ferrite Bead	BL02RN1-R62T4			01
	L401	GE300610	Ferrite Bead	BL02RN1-R62T4			01
	-403	GE300610	Ferrite Bead	BL02RN1-R62T4			01
	RA101	RE048100	Resistor Array	100KX4			01
	RA102	RE048100	Resistor Array	100KX4			01
	RA103	RE047100	Resistor Array	10KX4			01
	RA104	RE048100	Resistor Array	100KX4			01
	RA105	RE048100	Resistor Array	100KX4			01
	RA106	RE047100	Resistor Array	10KX4			01
	-110	RE047100	Resistor Array	10KX4			01
	RA601	RE047100	Resistor Array	10KX4			01
	-612	RE047100	Resistor Array	10KX4			01
*	SC201	VV047100	IC Socket	DICF-8CS-E			01
	TA101	VQ248500	Transistor Array	TD627381F			04
	TA102	VQ248400	Transistor Array	TD62783AF			04
	X101	VZ568200	Quartz Crystal Unit	22.5792MHz DSO751S			06
	X102	VZ568300	Quartz Crystal Unit	24.576MHz DSO751S			06
	X103	VI927300	Quartz Crystal Unit	20.0000MHz AT-49			03
		RD154270	Carbon Resistor (chip)	27.0 1/4 J			01
		RD254470	Carbon Resistor (chip)	47.0 0.1 J			01
		RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
		RD255100	Carbon Resistor (chip)	100.0 0.1 J			01
		RD255130	Carbon Resistor (chip)	130.0 0.1 J			
		RD155330	Carbon Resistor (chip)	330.0 1/4 J			01
		RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
*		VV375100	Carbon Resistor (chip)	750.0 0.1 D			01
		RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
		VV315200	Carbon Resistor (chip)	1.5K 0.1 D			01
*		VV320200	Carbon Resistor (chip)	2.0K 0.1 D			01
		RD256330	Carbon Resistor (chip)	3.3K 0.1 J			01
*		VV333200	Carbon Resistor (chip)	3.3K 0.1 D			01
		RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
		RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
*		RD258910	Carbon Resistor (chip)	910.0K 0.1 J			
		RD259100	Carbon Resistor (chip)	1.0M 0.1 J			01
*		RD259300	Carbon Resistor (chip)	3.0M 0.1 J			
*		V41293S0	Circuit Board	AO8 IPC4 (IPCOM)	(XW286B0)		
*		V49136S0	Circuit Board	AO8 LED2 (IPCOM)	(XW286B0)		
	C304	UR838100	Electrolytic Cap.	100.00 16.0V			01
		FG651330	Ceramic Capacitor-SL	33P 50V J			01
		FG652100	Ceramic Capacitor-SL	100P 50V J			01
		VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
	CN100	VE352600	Connector Base Post	PH-14P TE			01
	CN300	VB390100	Connector Base Post	PH 5P TE			01
	D300	VB941200	Diode	1SS133,1SS176			01
	-303	VB941200	Diode	1SS133,1SS176			01
	EM300	FZ006920	LC Filter	LS MT B271KB			01
	EM301	FZ006920	LC Filter	LS MT B271KB			01
	EM302	FZ006970	LC Filter	LS MT Y223NB			02
	IC300	XE737A00	IC	SN75124N	LINE RECEIVER		05
	IC301	XE683A00	IC	SN75121	LINE DRIVER		05
	JK300	VI552200	BNC Connector	YKS11-0 1P	WORD CLOCK IN		05
	JK301	VI552200	BNC Connector	YKS11-0 1P	WORD CLOCK OUT		05
	K300	VI474400	Terminal Plate				01
	K301	VI474400	Terminal Plate				01
*	LD100	V4078200	LED Display	LNM423AS01	UNIT NO.		06
*	SP100	V4411600	Spacer	7 SEG. 2S			01
	SW1	VG837400	Slide Switch	SSSB04	INPUT SELECTOR		03
	SW300	VQ907900	Slide Switch	SSSU112-S06N-1	WORD CLOCK 75ohm OFF/ON		01
		HF753470	Carbon Resistor	4.7 1/4 J			01
		HF754470	Carbon Resistor	47.0 1/4 J			01
		HF754750	Carbon Resistor	75.0 1/4 J			01
		HF756220	Carbon Resistor	2.2K 1/4 J			01

*: New Parts

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	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
*		V41288S0	Circuit Board	AI8 MB1		(XW282A0)		
	CN101	VU328200	Plug	PHEC 100P TE		SLOT 1-8,UNC Card		05
	-109	VU328200	Plug	PHEC 100P TE				05
	CN110	VI878600	Cable Holder	51048 8P TE				01
	-117	VI878600	Cable Holder	51048 8P TE				01
	CN118	VI878400	Cable Holder	51048 6P TE				01
	CN119	VQ045900	Connector, FFC	52044 30P SE				02
	CN120	VQ045000	Connector, FFC	52044 20P SE				01
	CN121	VB858300	Connector Base Post	PH 4P SE				01
	CN122	VB858500	Connector Base Post	PH 6P SE				01
	CN123	VB858300	Connector Base Post	PH 4P SE				01
	CN124	VB858500	Connector Base Post	PH 6P SE				01
	CN125	VB858300	Connector Base Post	PH 4P SE				01
	CN126	VB858300	Connector Base Post	PH 4P SE				01
	CN127	VB858400	Connector Base Post	PH 5P SE				01
	W110	- -	Ribbon Cable	P=2.0 #26 8P 140L		(V507960)		
	-117	- -	Ribbon Cable	P=2.0 #26 8P 140L		(V507960)		
	W118	- -	Ribbon Cable	P=2.0 #26 6P 140L		(V510880)		
*		V41287S0	Circuit Board	AI8 UNC		(XW281B0)		
	C218	UF038100	Electrolytic Cap. (chip)	100 16V				01
		FG652120	Ceramic Capacitor	120P 50V K				01
		FG612560	Ceramic Capacitor	560P 50V K				01
		UB012470	Monolithic Ceramic Cap.	B 470P 50V K				01
		UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z				01
	CN101	VB390100	Connector Base Post	PH 5P TE				01
	CN202	VT640300	Receptacle	PHEC 100P SE				04
	EM201	FZ006970	LC Filter	LS MT Y223NB				02
*	IC101	XY715A00	IC	PM1D42 V1.01		MASK CPU		10
	IC102	XT487A00	IC	TC74VHC245F		TRANSCEIVER		03
	IC103	XP226A00	IC	IC-PST591DMT		SYSTEM RESET		03
*	IC104	IS000800	IC	HD74LV08AFPEL		AND		01
*	IC105	IS000400	IC	HD74LV04AFPEL		INVERTER		01
*	IC201	XV685A00	IC	MBM29F400BC-70PFTN		FLASH ROM 4M		11
	IC203	XV729A00	IC	IDT71016S15Y-TR		RAM 1M		09
	IC204	XT487A00	IC	TC74VHC245F		TRANSCEIVER		03
	-210	XT487A00	IC	TC74VHC245F		TRANSCEIVER		03
*	IC211	IS013810	IC	SN74LV138ANSR		DECODER		01
*	IC212	IS013810	IC	SN74LV138ANSR		DECODER		01
*	IC213	IS000800	IC	HD74LV08AFPEL		AND		01
	K201	VI474400	Terminal Plate					01
	K202	VI474400	Terminal Plate					01
*	LD101	V3990300	LED (chip)	TLSU1008 RE		FOR TEST		01
	RA101	RE047100	Resistor Array	10KX4				01
	-120	RE047100	Resistor Array	10KX4				01
	RA202	RE048100	Resistor Array	100KX4				01
	-212	RE048100	Resistor Array	100KX4				01
	SW102	VQ949900	Switch	SSGM18151A		FUNCTION		03
*	X101	V3990700	Ceramic Resonator	CSTCC7.16MG0H6-TC				01
		RD250000	Carbon Resistor (chip)	0.0 0.0 J				01
		RD255220	Carbon Resistor (chip)	220.0 0.1 J				01
		RD256300	Carbon Resistor (chip)	3.0K 0.1 J				01
		RD257100	Carbon Resistor (chip)	10.0K 0.1 J				01
⚠ *		XW261A00	Power Transformer			J		17
⚠ *		XW262A00	Power Transformer			U,V		18
⚠ *		XW263B00	Power Transformer			H,B,W		17
*		V5789100	Motor	DC KDE1208PTS3-6		Fan		09
⚠		VS228900	AC Cord Assembly	2P 15A		J		09
⚠		VS229000	AC Cord Assembly	3P 10A		U,V		10
⚠		VS229100	AC Cord Assembly	3P 6A		H,W		10
⚠		VS229200	AC Cord Assembly	3P 10A		B		11
⚠	FZ400	KB003620	Fuse	4.00A JU		J,U,V		01
⚠	FZ400	KB003090	Fuse	3.15A S		H,B,W		01
⚠	FZ100	VS823300	Fuse	8.00A JU		J,U,V		02
⚠	FZ100	KB003250	Fuse	6.30A S		H,B,W		01

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	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
⚠	FZ200	**KB003630**	Fuse	5.00A JU		J,U,V		01
⚠	FZ200	**KB003100**	Fuse	4.00A S		H,B,W		01
⚠	FZ201	**KB003630**	Fuse	5.00A JU		J,U,V		01
⚠	FZ201	**KB003100**	Fuse	4.00A S		H,B,W		01
⚠	FZ300	**KB003630**	Fuse	5.00A JU		J,U,V		01
⚠	FZ300	**KB003100**	Fuse	4.00A S		H,B,W		01
⚠	FZ301	**KB003630**	Fuse	5.00A JU		J,U,V		01
⚠	FZ301	**KB003100**	Fuse	4.00A S		H,B,W		01

*: New Parts

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ANALOG OUTPUT BOX

AO 8

CIRCUIT DIAGRAM

CONTENTS

UNC 3
MB1 5
IFC3 9
IPC2 15
IPC4 16
LED2 17
AOCOM 18

WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specification equal to those originally installed.

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■UNC CIRCUIT DIAGRAM 002 (AO8)

AO8

SW102 FUNCTION TABLE

BIT No.	FUNCTION	COMMENT (0=ON, 1=OFF)
8	———	Reserved
7	Gain	0=Minimum, 1=Maximum
6	Phamtom	0=All off, 1=All on
5	CH select	0=All [CH*A] select, 1=All [CH*B] select
4-2	Clock source select	000 Internal 48kHz 001 Internal 44.1kHz 010 Reserved 011 AI8:[OUTPUT A], AO8:[INPUT A] 100 AI8:[OUTPUT B], AO8:[INPUT B] 101 AI8:[OUTPUT C] 110 AI8, AO8:[WORDCLOCK IN] 111 Reserved
1	Mode	0=Normal, 1=Debug

NOTE) Factory setup : All 0(=ON)
BIT7-5 : LMY2-ML(AI8) only

SH7042A(IC101) MODE SETUP

	Z102	Z103	Internal ROM
MODE1	Short	Short	Invalid
MODE2	Open	Open	Valid

NOTE) Factory setup : MODE2

87654321 BIT No.

IC101 SH7042A CPU

SYSTEM RESET

IC103 IC-PST3691DMT

AND

TRANSCEIVER

IC102 VHC245

FOR MAINTENANCE

INVERTER

FOR TEST

(セ): Ceramic Capacitor

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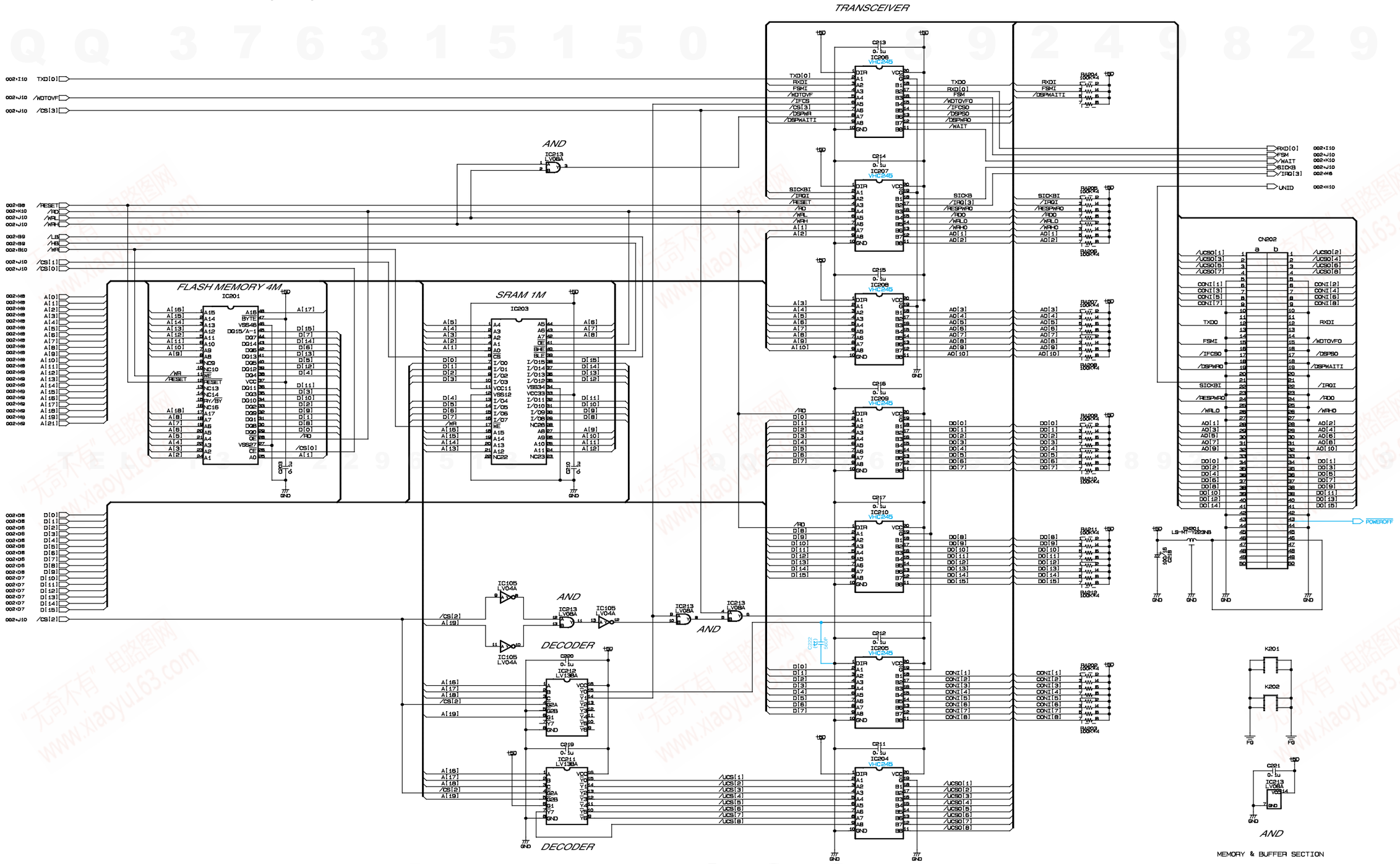
■ UNC CIRCUIT DIAGRAM 003 (AO8)

AO8



■ UNC CIRCUIT DIAGRAM 003 (AO8)

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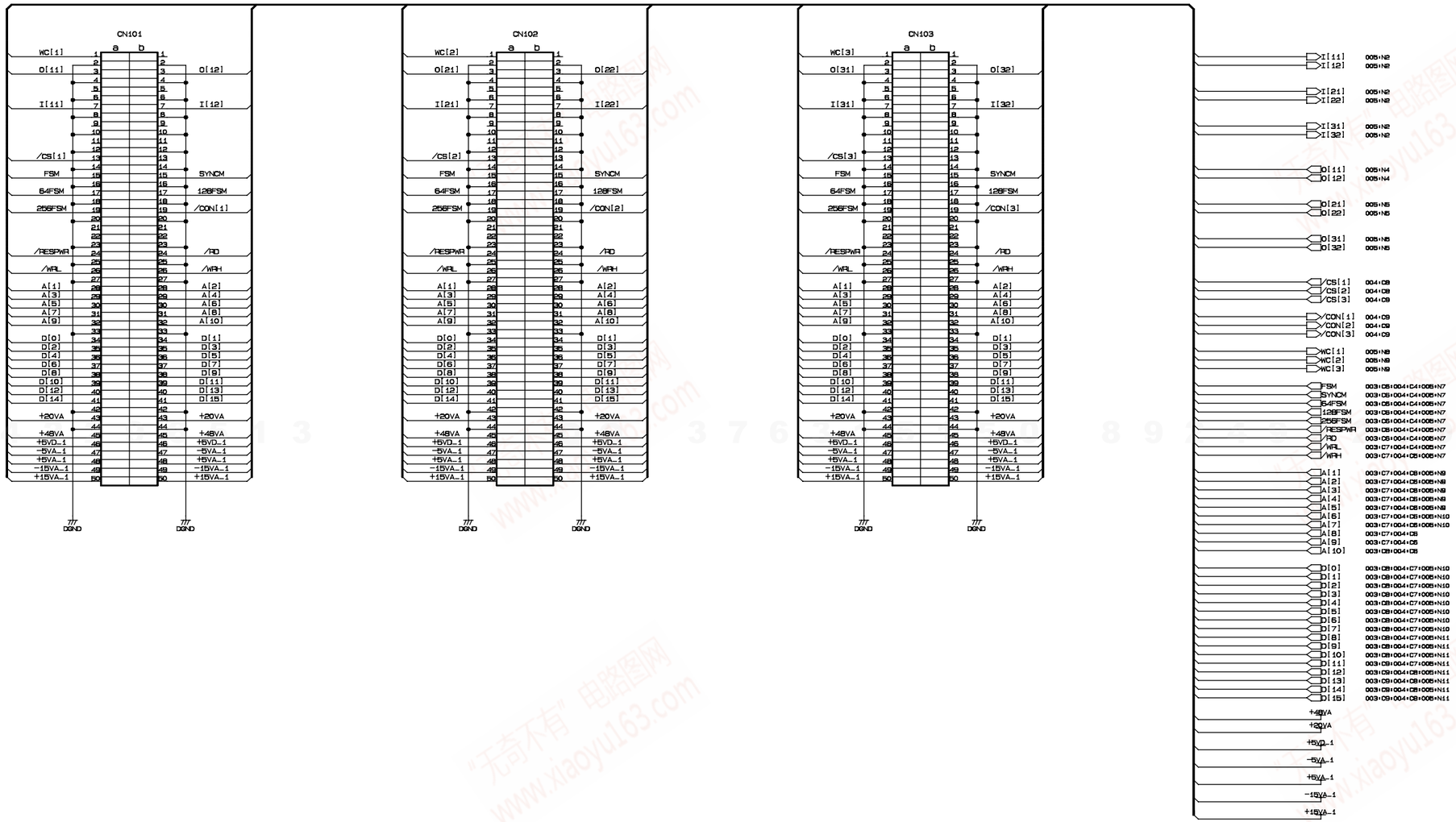
■ MB1 CIRCUIT DIAGRAM 002 (AO8)

AO8

SLOT No. [1] [2] [3]



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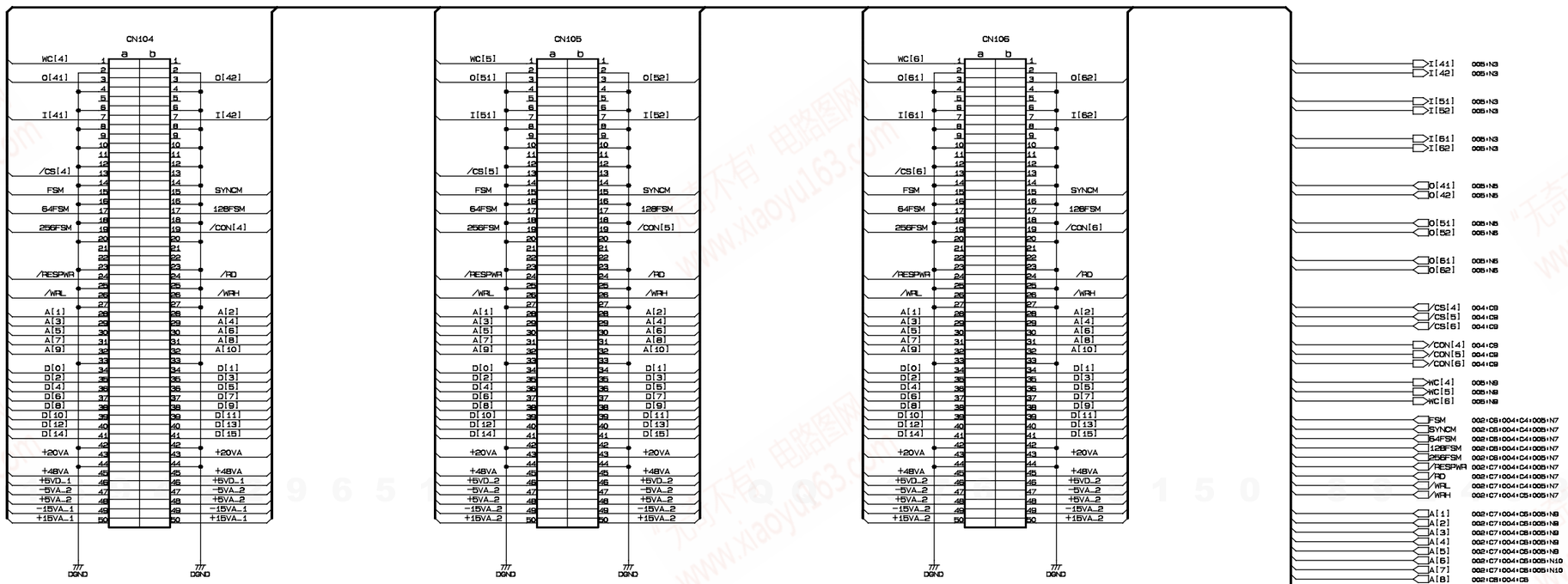
■MB1 CIRCUIT DIAGRAM 003 (AO8)

AO8

SLOT No. [4] [5] [6]



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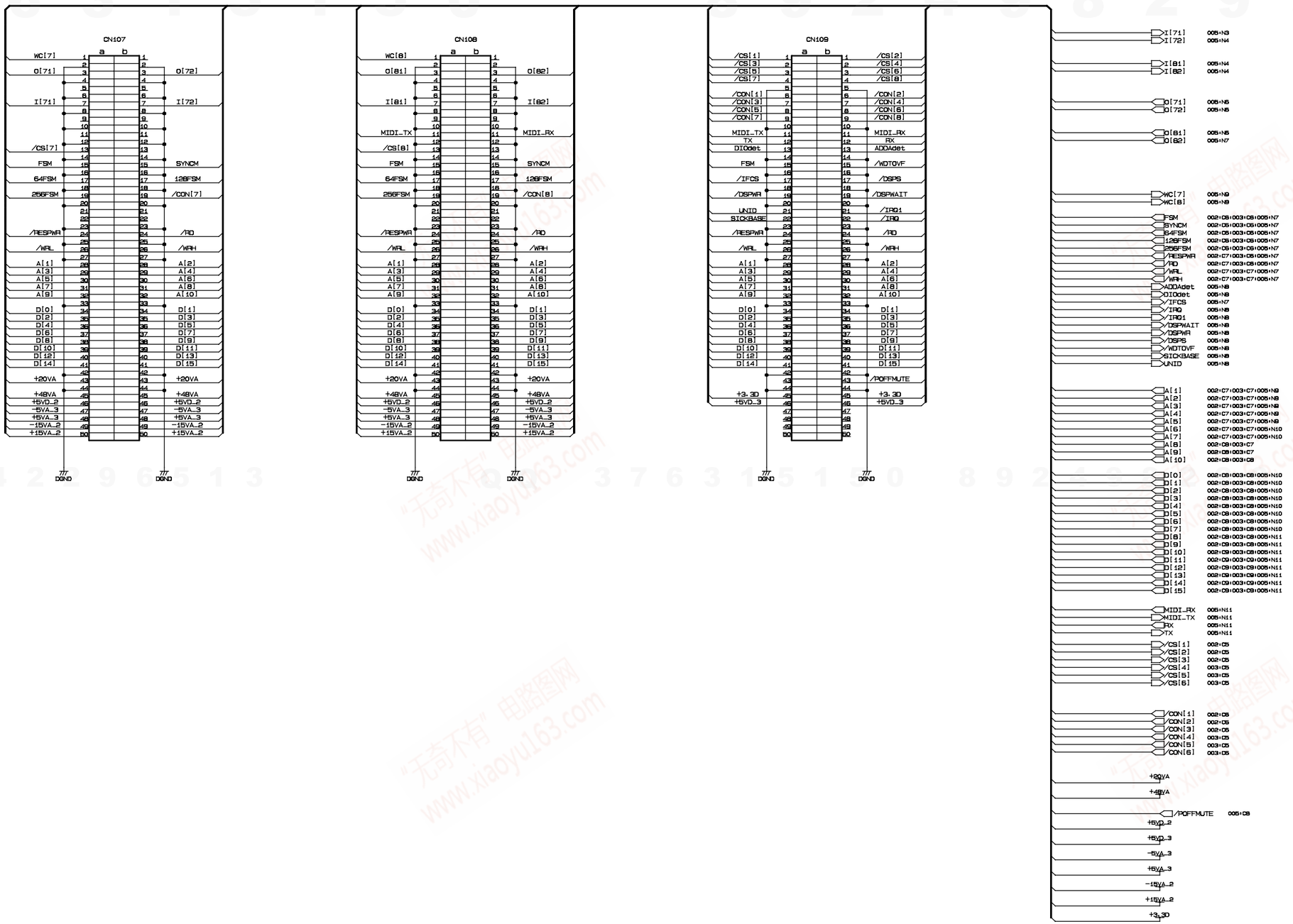
■ MB1 CIRCUIT DIAGRAM 004 (AO8)

AO8

SLOT No. [7] [8]



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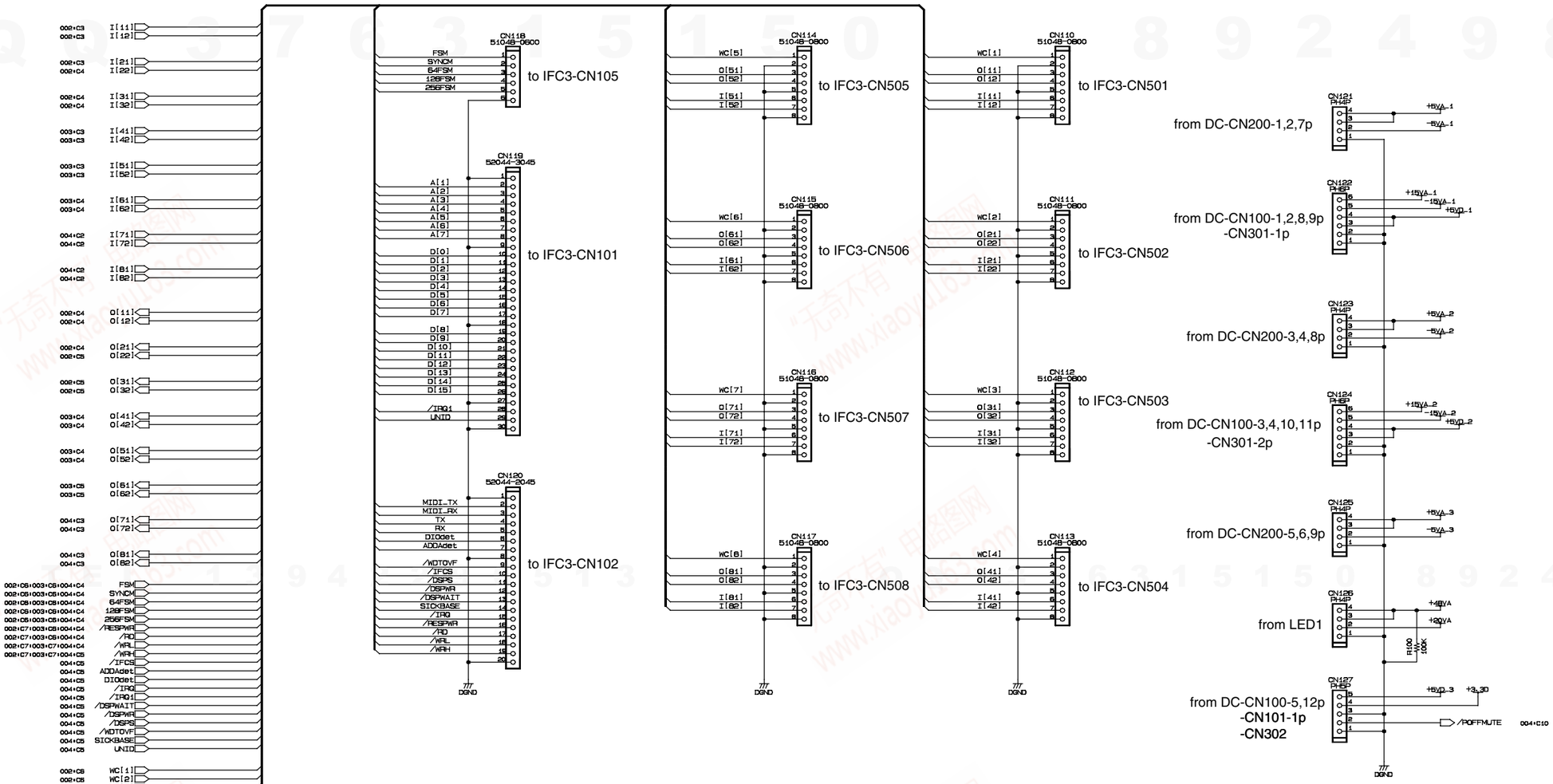
■ MB1 CIRCUIT DIAGRAM 005 (AO8)

AO8



KEC-92505-5⚠

8

■ MB1 CIRCUIT DIAGRAM 005 (AO8)

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■IFC3 CIRCUIT DIAGRAM 002 (AO8)

AO8

from MB1-CN119

from MB1-CN120

from IPC-CN300

from MB1-CN118

from DC-CN100-6,7,13,14p
-CN101-2,3p

to LED2-CN100

TRANSCEIVER

REGULATOR

INVERTER

AND

CPU I/F SECTION

KEC-92510-2

■IFC3 CIRCUIT DIAGRAM 002 (AO8)

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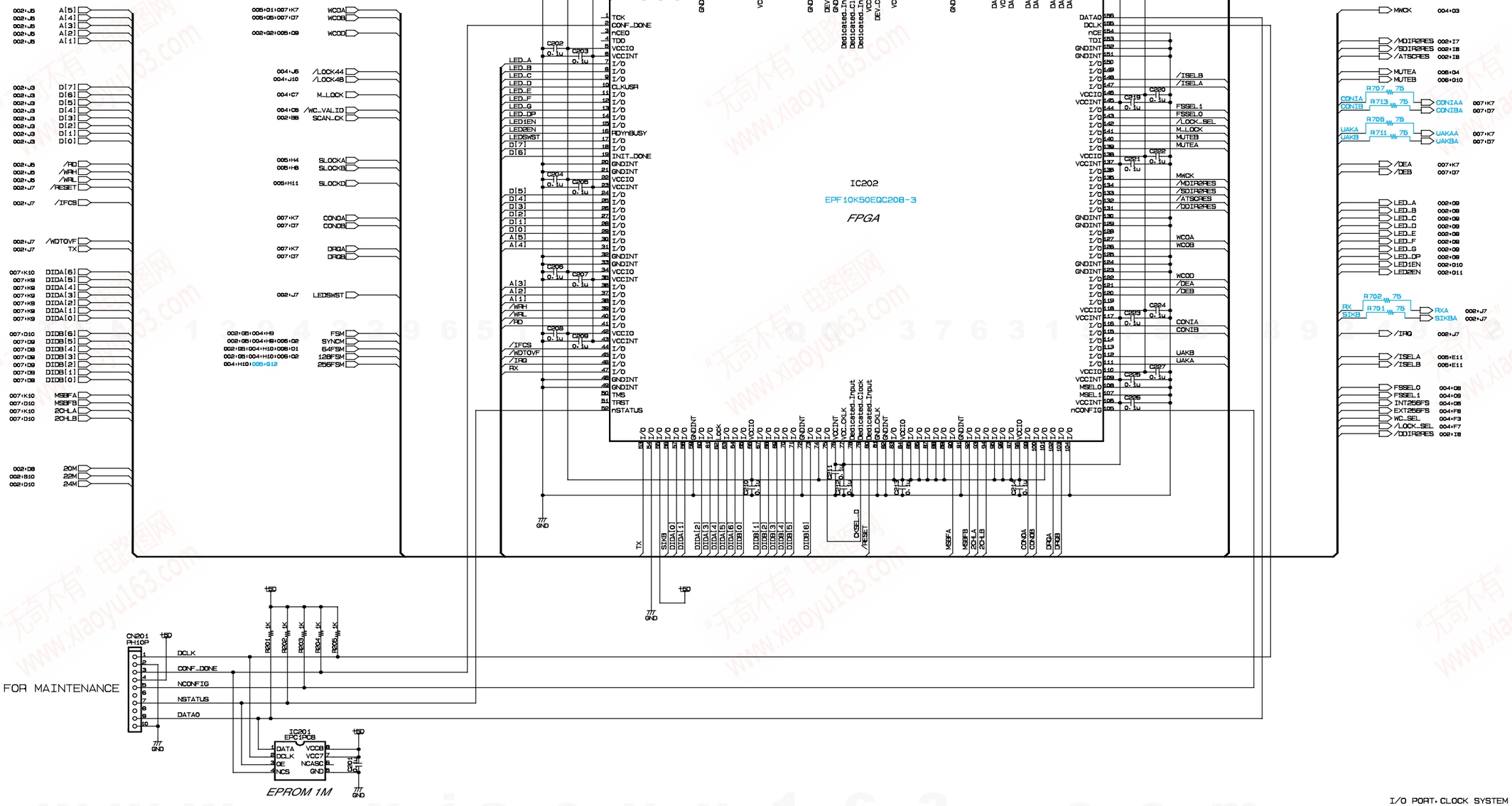
■ IFC3 CIRCUIT DIAGRAM 003 (AO8)

AO8



KEC-92510-3

■ IFC3 CIRCUIT DIAGRAM 003 (AO8)

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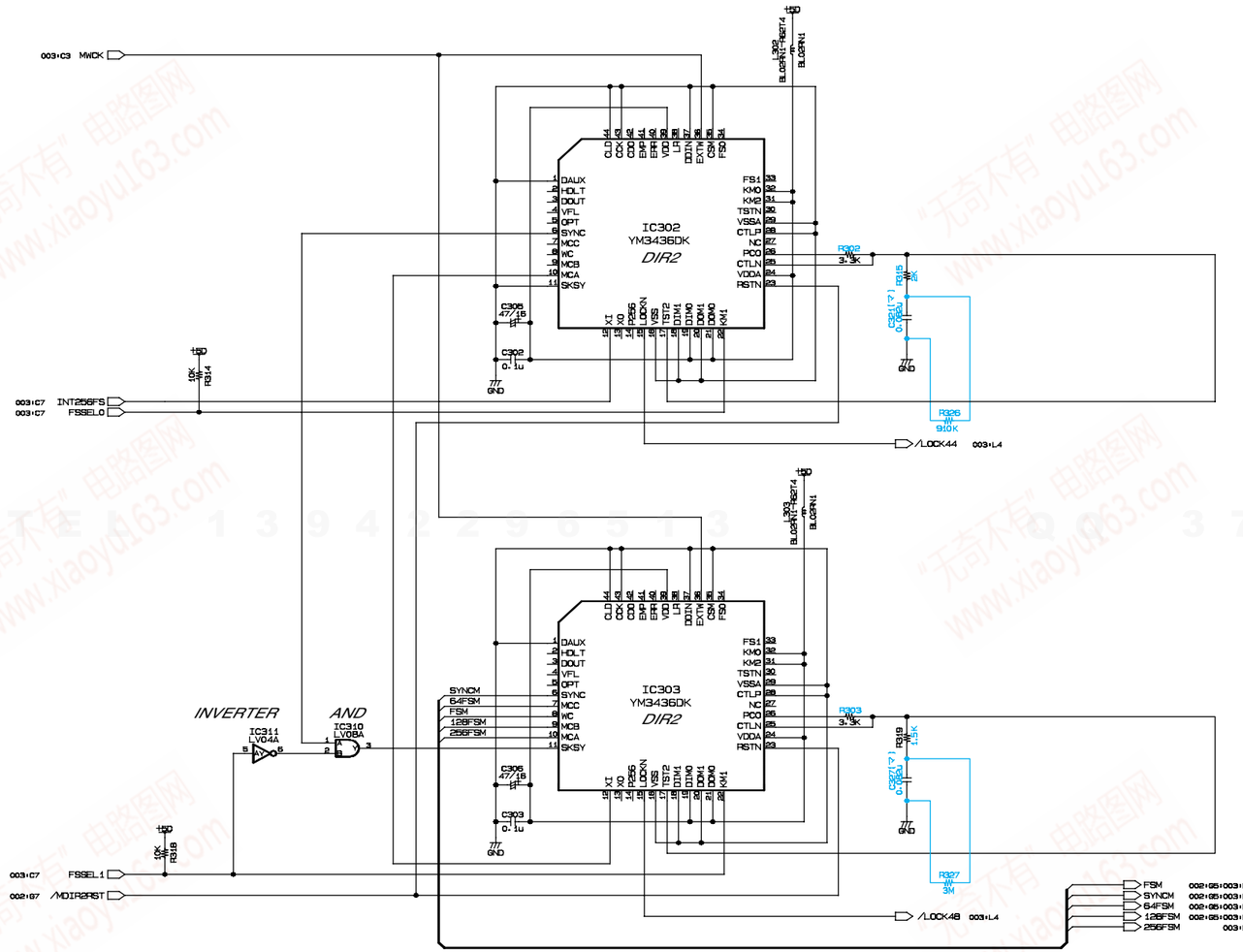
■IFC3 CIRCUIT DIAGRAM 004 (AO8)

AO8



PLL SECTION

(マ): Mylar Capacitor

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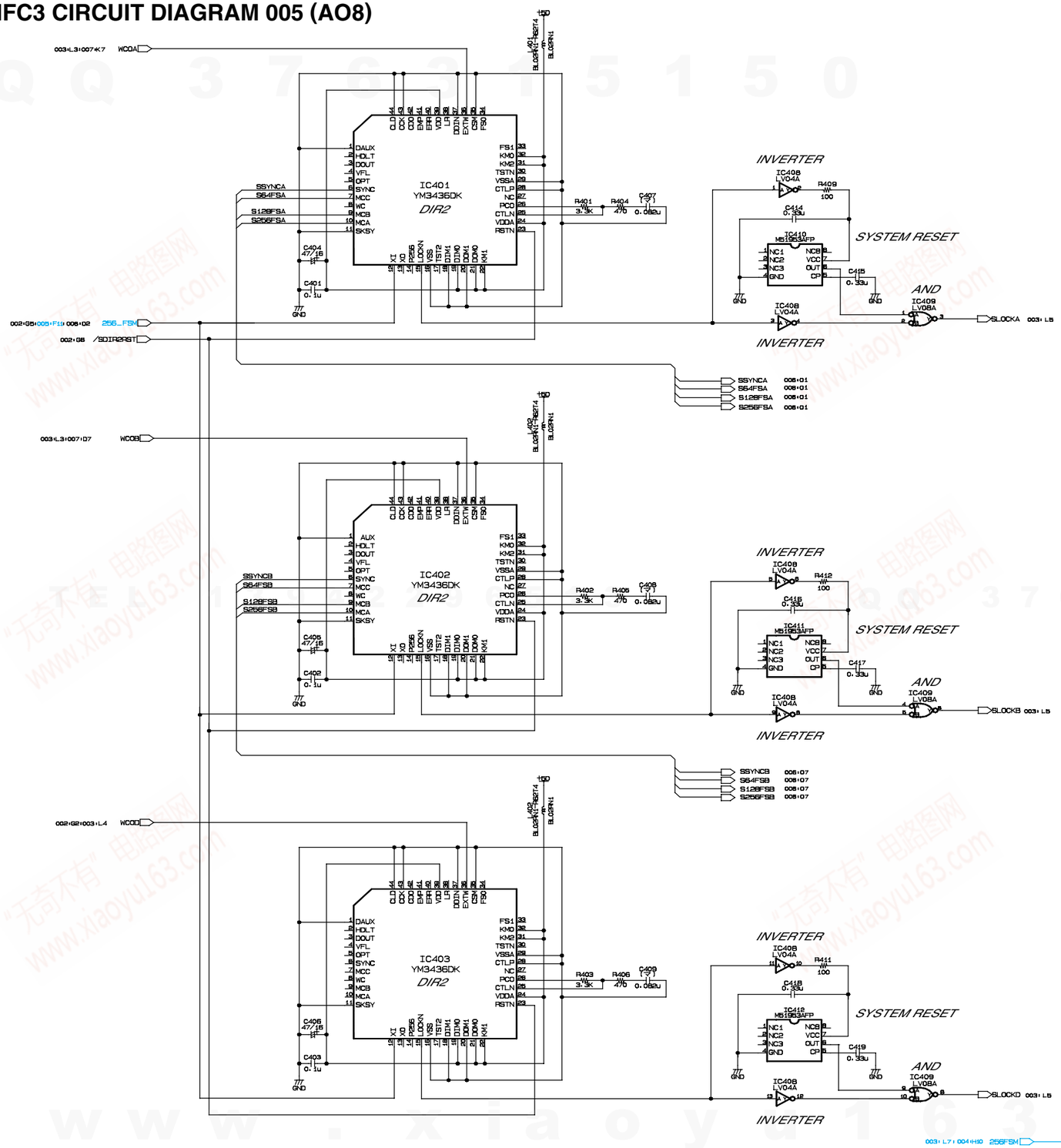
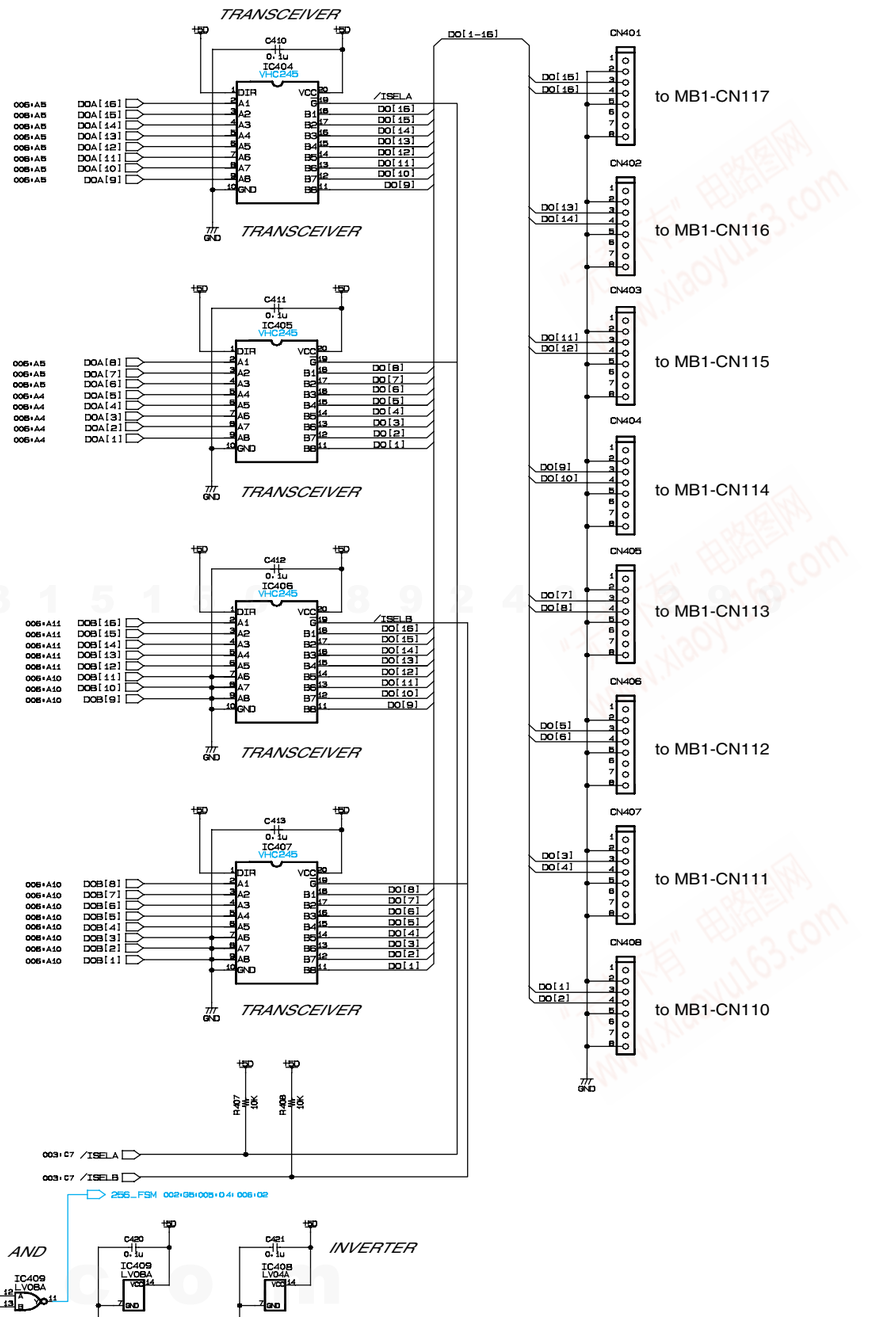
■ IFC3 CIRCUIT DIAGRAM 005 (AO8)

AO8





(ㅈ): Mylar Capacitor

KEC-92510-5

■ IFC3 CIRCUIT DIAGRAM 005 (AO8)

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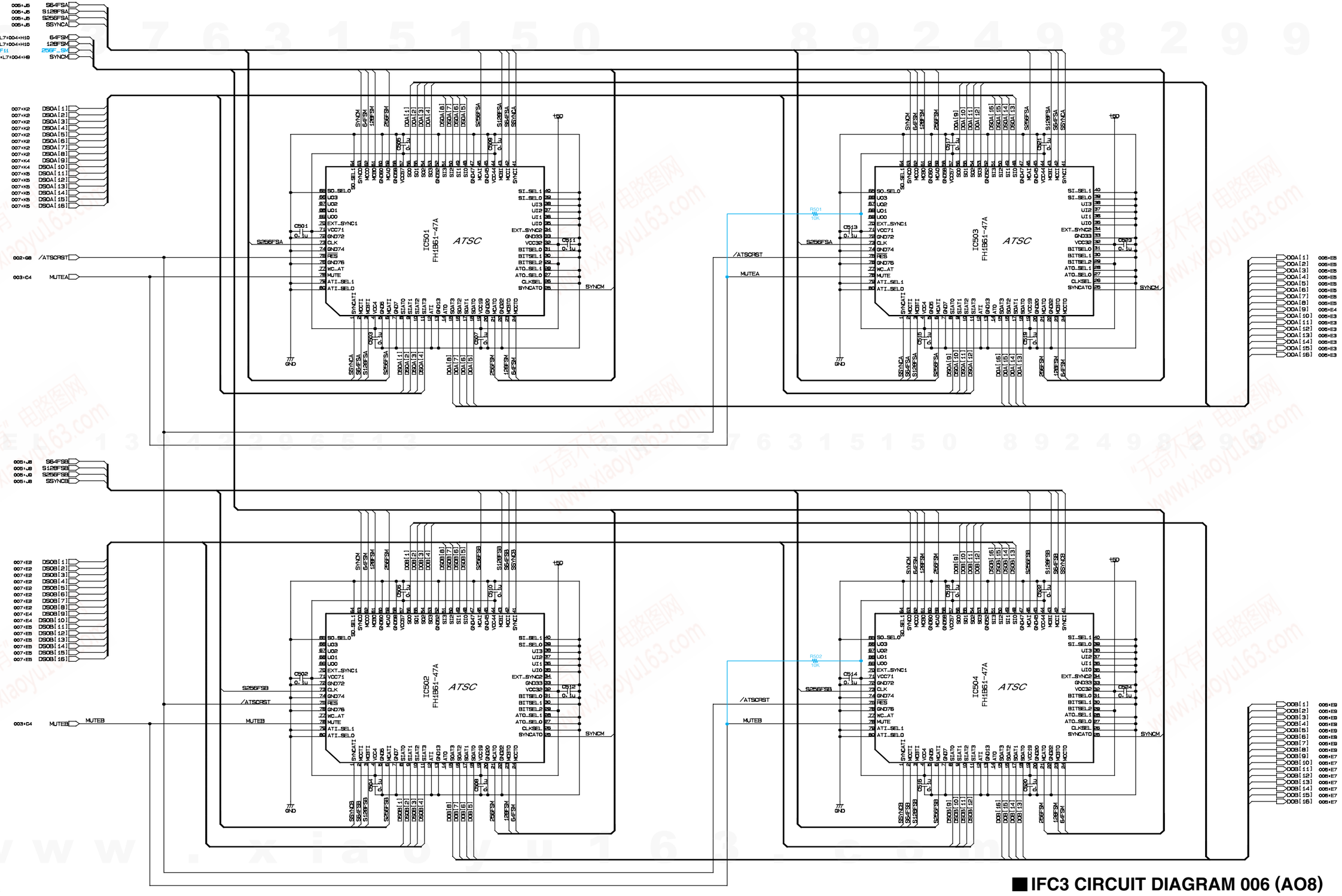
■IFC3 CIRCUIT DIAGRAM 006 (AO8)

AO8



KEC-92510-6

■IFC3 CIRCUIT DIAGRAM 006 (AO8)

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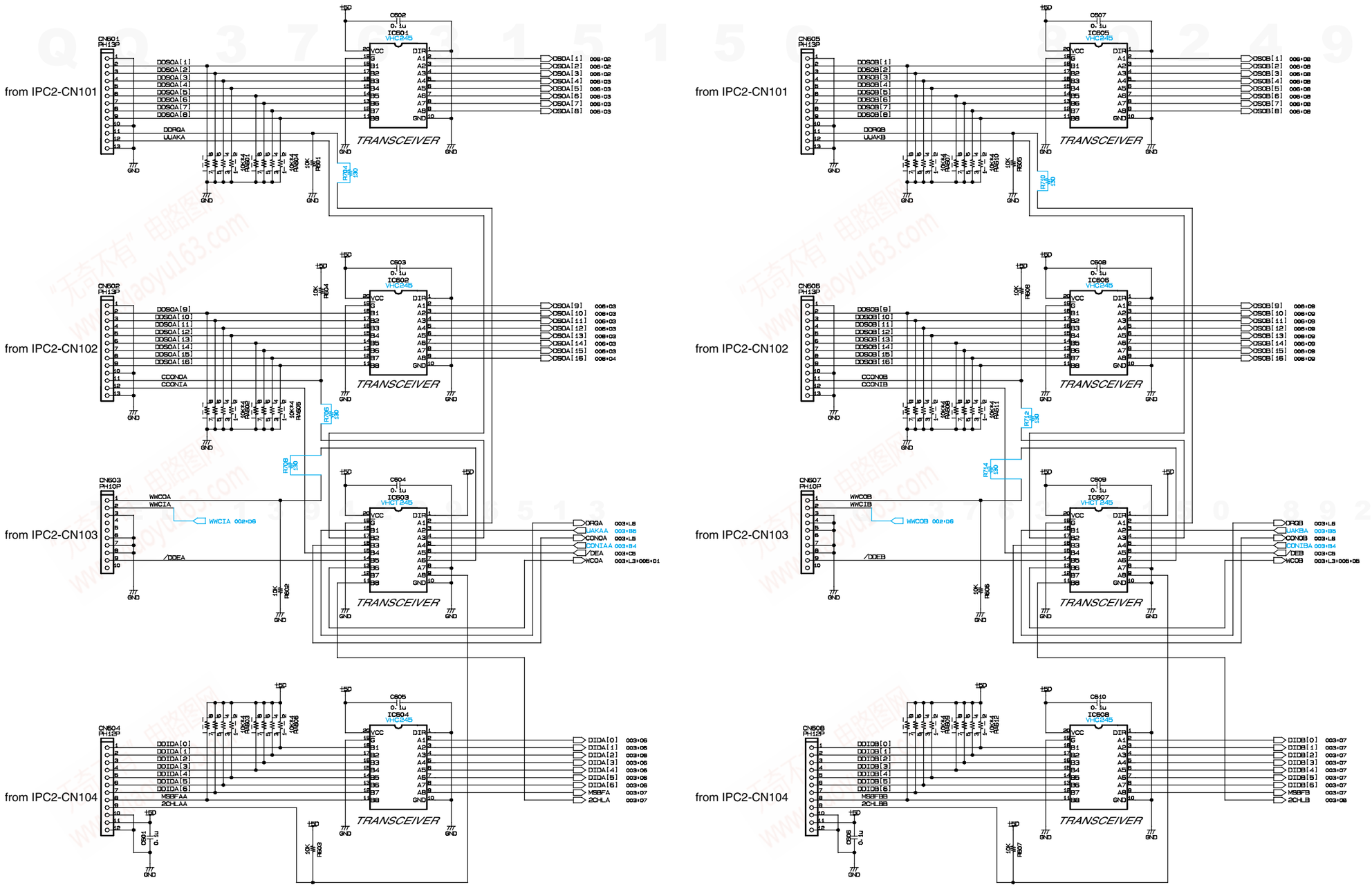
■IFC3 CIRCUIT DIAGRAM 007 (AO8)

AO8



AUDIO I/F SECTION

■IFC3 CIRCUIT DIAGRAM 007 (AO8)

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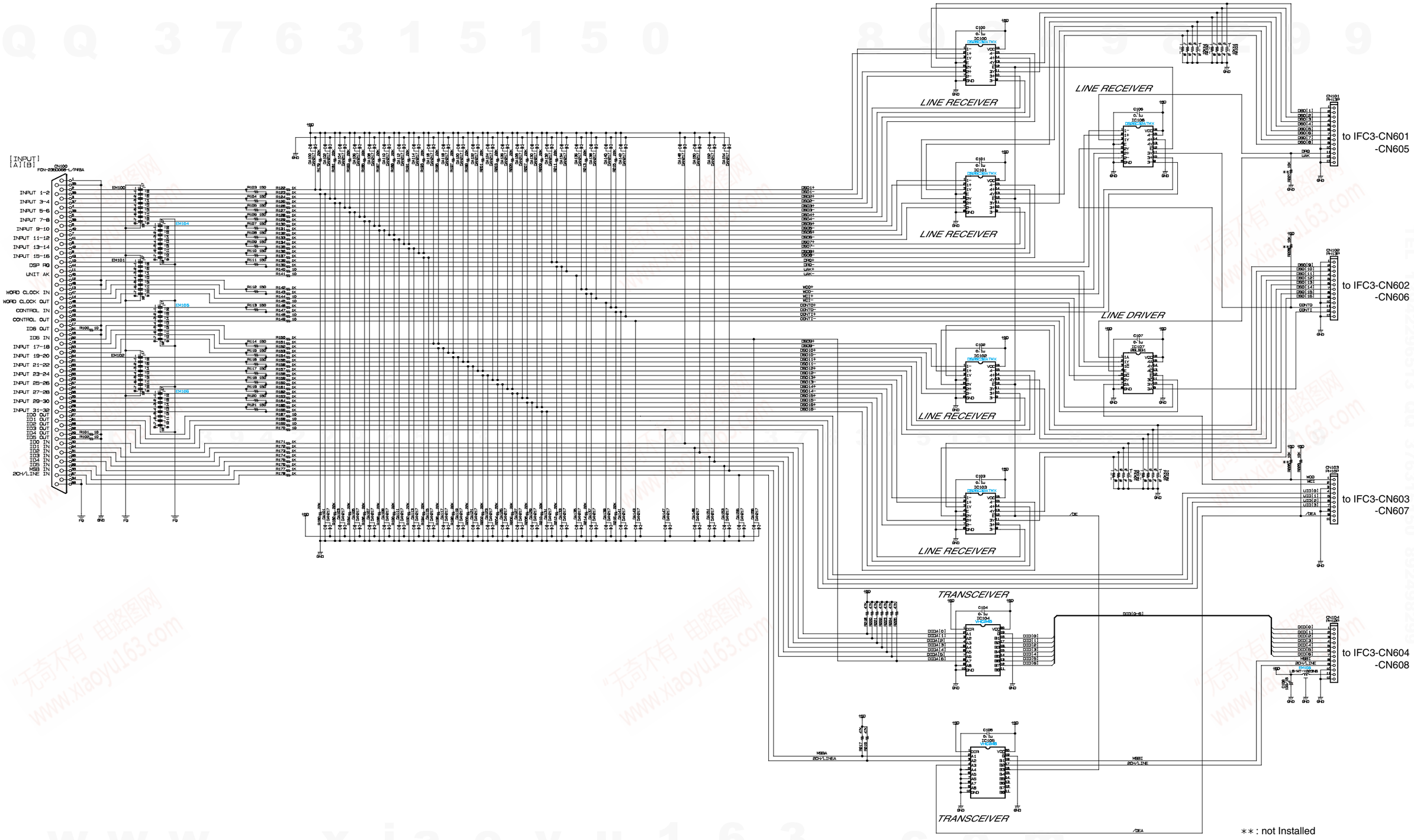
■IPC2 CIRCUIT DIAGRAM (AO8)

AO8



∗∗ : not Installed

KEC-92511-1 ⚠

■IPC2 CIRCUIT DIAGRAM (AO8)

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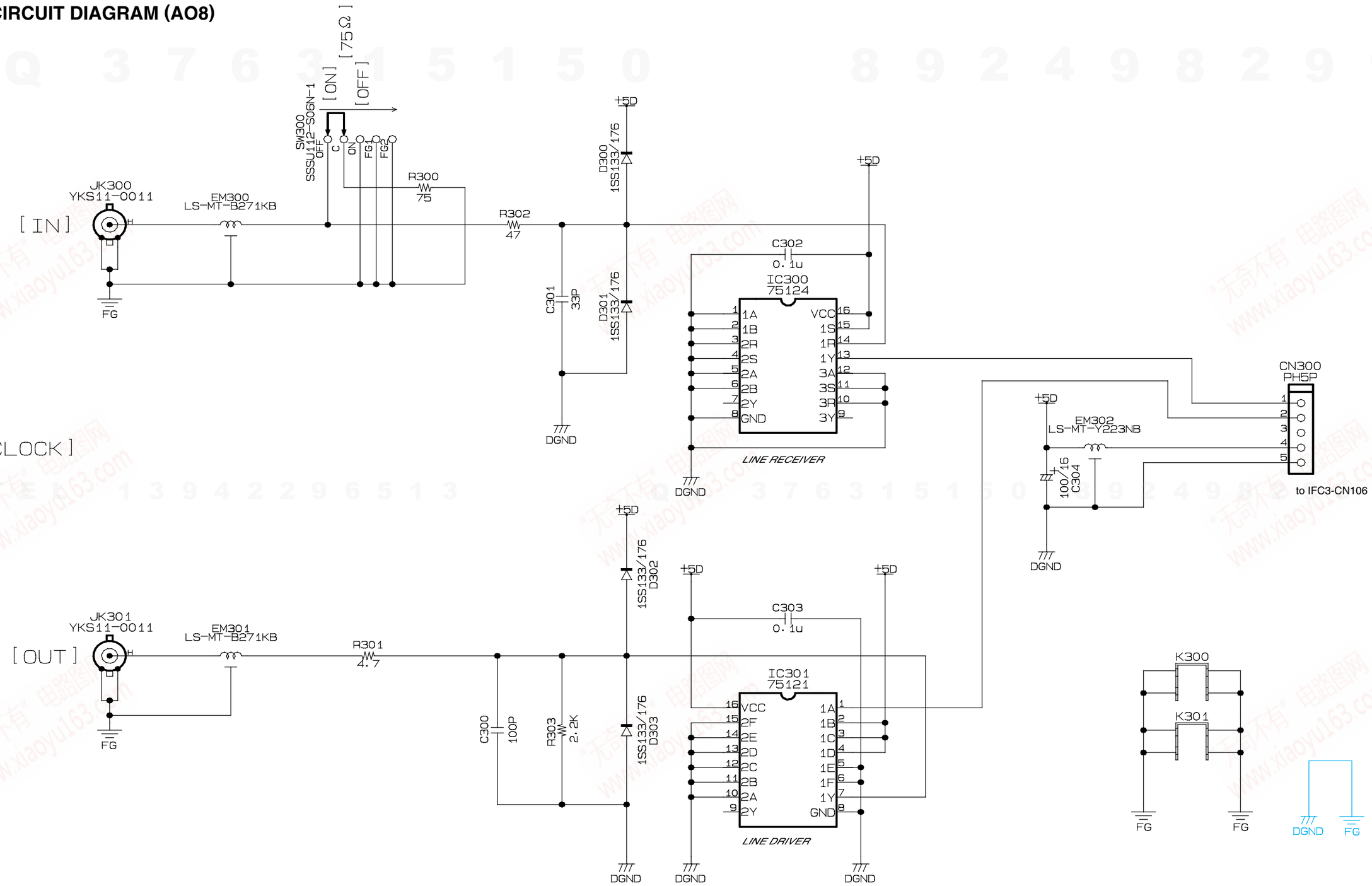
■IPC4 CIRCUIT DIAGRAM (AO8)

AO8



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■IPC4 CIRCUIT DIAGRAM (AO8)

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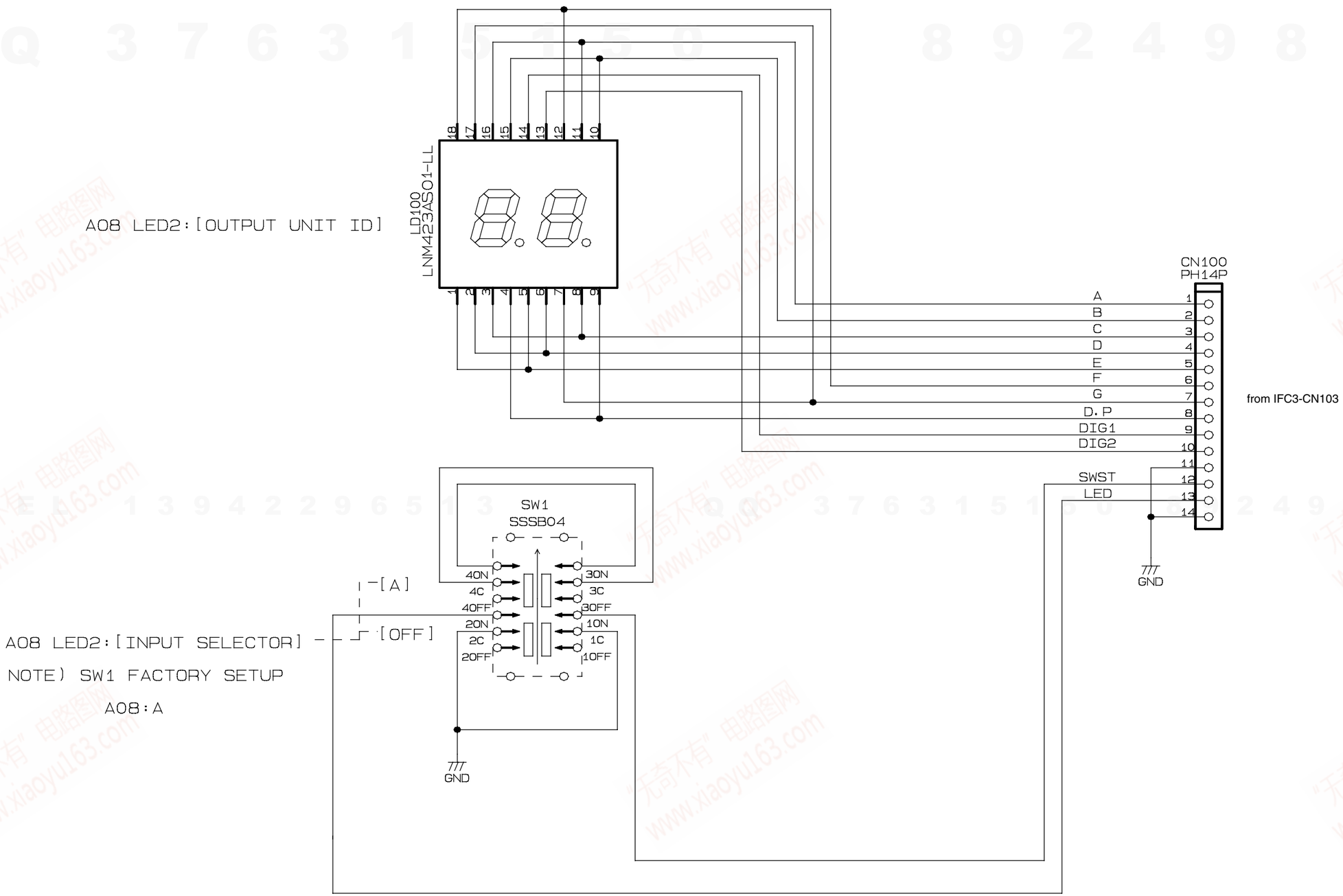
■ LED2 CIRCUIT DIAGRAM (AO8)

AO8



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■ AOCOM CIRCUIT DIAGRAM 002 (AO8)

AO8

DC

PSB

AC

REGULATOR +5V 2A

REGULATOR +5V 2A

REGULATOR +3.3V

REGULATOR +5V 2A

REGULATOR +5V

REGULATOR +5V

REGULATOR +5V

REGULATOR -5V

REGULATOR -5V

REGULATOR -5V

REGULATOR +15V

REGULATOR +15V

SYSTEM RESET

REGULATOR -15V

REGULATOR -15V

to MB1-CN122-1,2,3,4p
-CN124-1,2,3,4p
-CN127-3,4,5p
IFC3-CN104

to MB1-CN127-4p
IFC3-CN104-5,6p

to MB1-CN121-1,4p
-CN123-1,4p
-CN125-1,4p

to MB1-CN121-2p
-CN123-2p
-CN125-2p

to DR-CN500

to MB1-CN122-6p
-CN124-6p
-CN126-1,2p

to MB1-CN127

to MB1-CN122-5p
-CN124-5p

■ TO SERVICE PERSONNEL

Critical Components Information
Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equel to those originally installed.

	J, U, C	H, B
FZ100	8A 125V	T8.0AL 250V
FZ200	5A 125V	T4.0AL 250V
FZ201	5A 125V	T4.0AL 250V
FZ300	5A 125V	T4.0AL 250V
FZ301	5A 125V	T4.0AL 250V
FZ400	4A 125V	T3.15AL 250V

(マ): Mylar Capacitor

KEC-92513-2 ⚠

■ AOCOM CIRCUIT DIAGRAM 002 (AO8)

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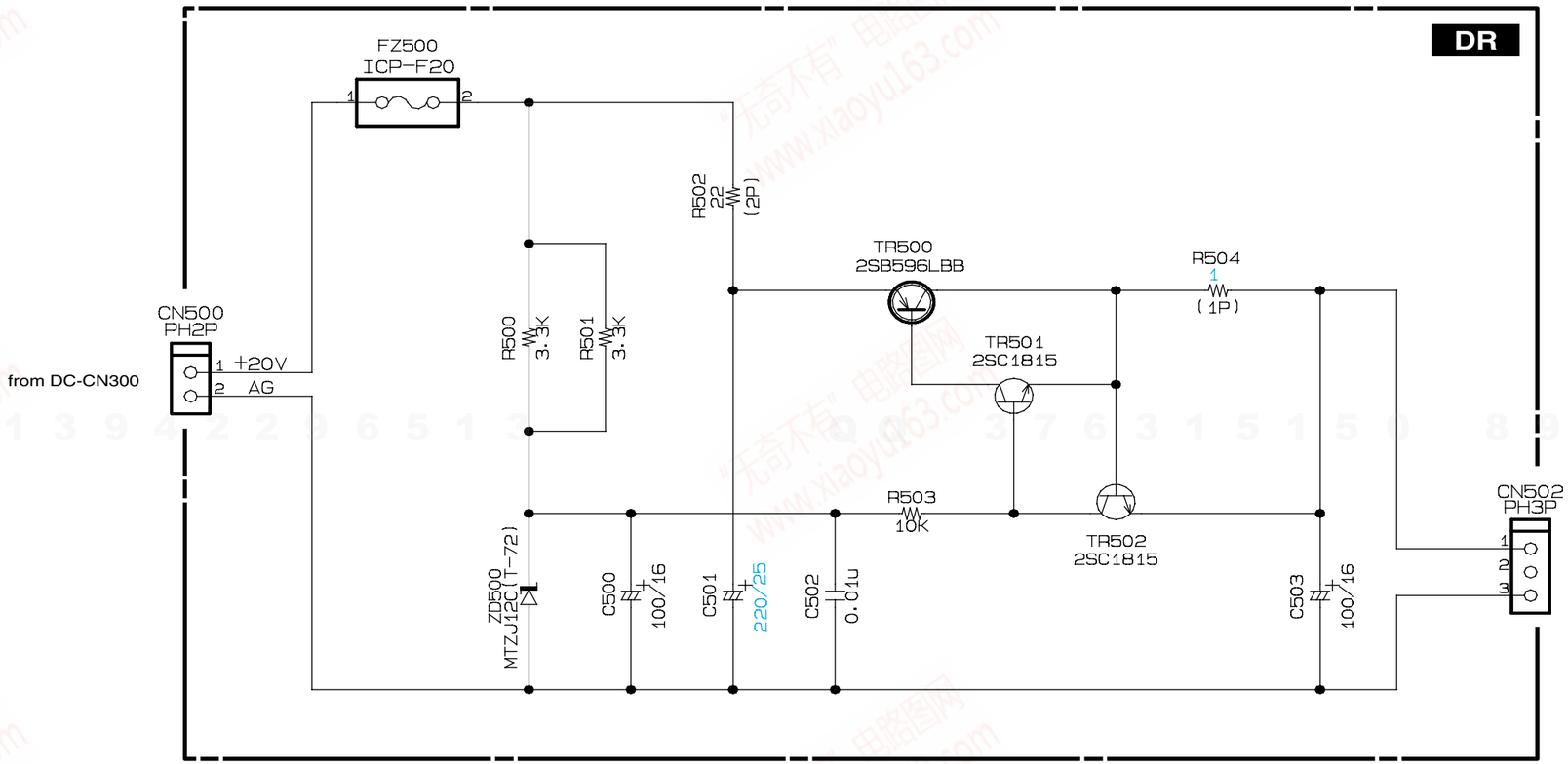
■ AOCOM CIRCUIT DIAGRAM 003 (A08)



(1P, 2P) : Metal Oxde Film Resistor

•PQ05RF2(XH672A00) REGULATOR +5V 2A 1: IN 2: OUT 3: GND 4: ON/OFcont.	• µPC2933HF (XW196A00) REGULATOR +3.3V 1: INPUT 2: COMMON 3: OUTPUT	• µPC2405AHF (XR607A00) REGULATOR +5V 1: INPUT 2: COMMON 3: OUTPUT	•NJM7905FA(XK309A00) REGULATOR -5V 1: OUTPUT 2: INPUT 3: COMMON	• µPC2415HF (XR608A00) REGULATOR +15V 1: INPUT 2: COMMON 3: OUTPUT	•NJM7915FA(XD854A00) REGULATOR -15V 1: OUTPUT 2: INPUT 3: COMMON	•LT1118CST-2.5 (XY094A00) REGULATOR +2.5V TAB IS GND 1: OUT 2: GND 3: IN	•RBV-1506 (VM621400) DIODE STACK	•D6SB60L (VT682400) DIODE STACK 6.0A 600V

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